

SEP 9 1930

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

PUBLISHED MONTHLY BY THE MINNESOTA STATE MEDICAL ASSOCIATION

Volume XIII
Number 9

SEPTEMBER, 1930

25 cents a copy
\$3.00 a year

Medical Lin

CONTENTS

PRESIDENT'S ADDRESS.	
<i>S. H. Boyer, M.D.</i> , Duluth, Minnesota.....	599
PRIMARY CARCINOMA OF THE LUNGS AND BRONCHI.	
<i>E. V. Goltz, M.D.</i> , Saint Paul.....	605
THE CHILDHOOD TYPE OF TUBERCULOSIS.	
<i>Eugene F. Johnson, M.D.</i> , Nopeming, Minnesota	613
OCULAR MANIFESTATIONS OF HYSTERIA IN CHILDREN.	
<i>John M. Robinson, M.D.</i> , Duluth, Minnesota	618
VALVULAR HEART DISEASE IN YOUNG ADULTS.	
<i>C. A. McKinlay, M.D.</i> , Minneapolis.....	624
THE CLINICAL ASPECTS OF SCLEROTIC CHANGES IN THE AORTIC VALVE.	
<i>Carl B. Drake, M.D.</i> , Saint Paul.....	628
STATUS OF TINTED LENSES.	
<i>Leo W. Fink, M.D.</i> , Minneapolis.....	632
STONE IN THE UPPER URINARY TRACT: ITS CLINICAL MANIFESTATIONS AND TREATMENT.	
<i>Philip F. Donohue, M.D.</i> , F.A.C.S., Saint Paul	636
CARCINOMA OF THE STOMACH.	
<i>Karl W. Anderson, M.D.</i> , Minneapolis.....	643
AMBROISE PARÉ—MILITARY SURGEON.	
<i>Harold Edwin Hullsiek, M.D.</i> , F.A.C.S., Saint Paul	648
HYPERTHYROIDISM: A REVIEW OF 270 HOSPITAL RECORDS.	
<i>Evelyn Gruhlke McLane, A.B., M.D.</i> , Sleepy Eye, Minnesota	652
PRESIDENT'S LETTER.....	656
EDITORIAL:	
Boehler's Method of Treatment of Fractures	657
Co-operation with the Purple Cross.....	657
Medical Meetings.....	658
OF GENERAL INTEREST.....	659
COMMITTEE ON PUBLIC HEALTH EDUCATION....	660
REPORTS AND ANNOUNCEMENTS OF SOCIETIES:	
Medical Broadcast for the Month.....	661
Northern Minnesota Medical Association....	661
Inter-State Postgraduate Medical Association of North America.....	661
American Association for the Study of Goiter	661
CONSULTATION BUREAU	662
OBITUARY	663
PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE	664
UNIVERSITY NEWS:	
Report of the Dean of the Medical School	672
MISCELLANEOUS:	
Minnesota State Board of Medical Examiners	675
PROGRESS:	
Pediatrics	676
Eye, Ear, Nose and Throat.....	676
BOOK REVIEWS	678

Business Manager: J. R. BRUCE, 2429 University Avenue, Saint Paul, Minnesota
Telephone NE stor 1381



The Modern Method of Measuring Visual Acuity

CLASON VISUAL ACUITY METER

This instrument meets the need of the optical practitioner for an accurate, scientific method for measuring keenness of visual perception.

SIMPLICITY. It projects an image of test characters upon screen or wall. The size of the test characters may be changed at will by simply moving the projection lens, the increase or decrease being indicated on a scale directly in percentage of acuity.

TIME SAVER. There is a gradual and continuous change in the size of characters. In determining astigmatic errors this is especially effective, because of the definite and dependable answers from patients.

ACCURATE ACUITY FOR ALL CASES. Letters, illiterate characters, astigmatic characters or parallel lines may be shown. Diaphragm slides are provided by which the aperture shown can be limited to any desired size or to pick out any single character or group of characters on the slide.

It eliminates the possibility of memorizing the chart, and prevents successful guessing by the patient.

THRESHOLD OF VISION. For the precise determination of astigmatism subjectively at the threshold of acuity, the astigmatic ball test slide has been found to give remarkably satisfactory results. For this purpose the ability to rotate the slide holder to any desired meridian is especially valuable.

WORKING DISTANCE. The instrument may be used at 20 ft., or if necessary at 10 ft., or at an intermediate distance if the distance from the slide is equal to the distance from the screen to the patient.

ILLUMINATION SYSTEM. The illuminant is completely adjustable. The definition for all characters is sharp and uniform. All instruments are now supplied with special etched diffusing glass.

TEST SLIDES. Test letter, astigmatic, color slides and two diaphragm slides are included, giving a range of acuities from 20/13 to 20/800 Sn.

Write For Full Details

RIGGS OPTICAL COMPANY
CHICAGO SAN FRANCISCO

Offices located in 57 principal cities of the Mid-West and West

MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society.

VOL. XIII

SEPTEMBER, 1930

No. 9

PRESIDENT'S ADDRESS*

S. H. BOYER, M.D.
Duluth, Minnesota

A GENERATION ago the muck-rakers were attacking corporate business. Their destructive criticism succeeded in working a great deal of serious inconvenience to the business methods of that time, but the ultimate result was to popularize still greater business combinations and the muck-raker was thereby out of a job. He is an ubiquitous fellow, however, and always trying to smash something. He is destructive, never constructive. Latterly he has been chiefly concerned with the medical profession. For years past he has been picking it to pieces and tearing it to tatters. Were it not made of such substantial fabric it would have met its Waterloo long ere this and the field of healing would have been abandoned to fakers and quacks.

Nevertheless there are faults and flaws in medicine just as in everything else. As a profession we must be grateful to him who points them out to us, and likewise glad to enlist assistance in correcting whatever evils or defects there may exist. It so happens that the science of medicine in seeking the cure for disease first tries to learn the causes thereof. This approach to the problem offers always the best hope of correct solution. Before proceeding farther let it be clearly understood that the economico-social problems of medicine are not isolated. They are not the property of medicine alone. They are not due to any failure of duty or responsibility on the part of the profession and they are inextricably interwoven with the same order of problems of all other social and industrial groups. The solution of our problems can come only with the solution of these related problems of all groups, for the economico-social problems of medicine are in truth the problems of society itself.

Among the charges brought against us are those of uneven distribution of service, inequality of service and excessive fees, the latter more especially in relation to the patient's income. Reference is made to the group whose earnings do not exceed \$2,500.00 per annum and does not consider the indigent.

Not long since, it was pointed out in an article dealing seriously with the uneven distribution of medical service that in New York City, just around the corner from a great medical center, there was discovered a number of untreated cases of diphtheria. Wonder was expressed that, though living almost in the shadow of a center where medical skill of the highest order obtained, still these people were neglected. The article went on to blame the medical profession for failing to reach and treat these cases. Uneven medical distribution was given as the reason for the failure. Paralleling this type of complaint is the widely heralded statement, with convincing statistics, that there is a dearth of doctors in the rural communities. It has been shown that in certain states and localities there are thousands of people without available medical service. Both of these citations touch upon the uneven distribution of medical service. Should inquiry be made it would be found undoubtedly that in the first instance ignorance, if not mental incompetency, prevailed and that those who should have been most concerned did not know enough to know that sickness existed, might be serious, could be cured and that aid was available. Most of us have encountered the like in our own experiences, in rural as well as in urban communities. You must blame the social worker, not the doctor, for such failures.

The second citation is best answered by pointing to the fact that in rural communities that are prosperous, in such as exist in Minnesota and

*Presented at the Annual Meeting of the Minnesota State Medical Association, Duluth, Minnesota, July 14, 1930.

adjoining states, there is no shortage of doctors. We may confidently predict that the five year investigation of the Committee on the Costs of Medical Care will prove this statement to be correct. No doubt there is a shortage in the abandoned farm districts and in the sparsely settled frontier fields.

While we are thinking upon this subject it is only fair to call your attention to the fact that the young folks leave the farms and the old folks do too, if they can, when the farm proves unattractive and unprofitable. That isn't the fault of the medical profession, it is the fault of our economic and social systems coupled with the inherent insufficiencies of humanity. A good farmer won't move his family into a territory where there are not good roads, good schools and churches. A doctor cannot be expected to do differently. Your merchants, tradesmen, white collar men all locate in prosperous places, and so do doctors. None of them except the social worker goes to the slums of the cities and the least prosperous of the agricultural localities to earn a living. The social workers are rendering a valuable social service in choosing this field, but they would be of far greater service if they strove to remove the causes of such conditions instead of attempting to correct the effects.

Poverty and illiteracy have much to do with insufficient and futile medical care. People must have comfortable living quarters, wholesome food, suitable clothing and a modicum of intelligence to benefit to the fullest by medical service. Without these, both preventive and curative medicine are of comparatively little value. It is true the very poor get more hospital service than do those with modest incomes. It would be impossible to treat the former properly in their homes. But upon leaving the hospital they return to the same squalid and unhygienic conditions of life, thus rendering futile a great part of the service they have received. The latter can be taken care of in their homes, and they are taken care of there, and well. Their homes are mostly favorable to health, therefore medical service in their case is not futile. Moreover, let it be said that not infrequently wealthy people, owing to stupid vanities and poor judgment, succeed in selecting for themselves very mediocre professional service. So let us explode the myth that the "very poor and the very rich alone receive adequate medical service."

That great class, including the \$2,500 a year man and lesser wage earners, are the most numerous of our people. They are reasonably enlightened, housed, clothed and fed. The home and family life of many of them is charmingly beautiful. Their children, reared in an atmosphere of decency, frugality and self dependence, come to fill positions of trust and responsibility and are a challenge to the admiration and respect of the entire community. They become an honored example to be followed by vast numbers upon whom fortune has smiled more indulgently but, after all, less favorably. The great majority of the medical profession render a reasonably high average of service for a reasonable remuneration to this class of people.

The incidence of sickness is uneven; therefore the cost is unevenly distributed. The burden falls heavily upon a limited number of the sick population and lightly upon the rest. The source of complaint as to costs of sickness is to be found among the limited number who bear the heavy end of the burden. Thus it is to be seen that the trouble does not arise within the medical profession nor is it confined to the field of sickness only. Every family has unlooked for and unusual expenses at some time or other. With one family it will be a fire, with another a wedding, with another a lost job and continued overhead, while with still another it will be the cost of sickness and perhaps death and burial. When we consider this problem we must do so in relation to other costs and their distribution. We must not lose our sense of proportion.

It has been stated that the so-called middle class does not receive adequate medical service because of prohibitive costs. This leads to the query, "What is meant by the term adequate?" If those who use that term mean that every individual when ill shall be subjected to all the technical tests, a clinical examination by an expert clinician supplemented by examinations by a long train of specialists, then we will have to admit they do not. Furthermore, they never will, and if they did it would not prove to be adequate nor suitable. That kind of service, mass service if you please, is an ideal which, like the rose, has many thorns. Now, if by "adequate" we mean services rendered by well trained doctors such as have been graduated from our Class A schools for at least two decades last past and whose integrity and scholarly

habits are above reproach, then we must assert without fear of contradiction that adequate service is rendered, or is at least available.

Assuming for the sake of discussion that the costs of service are prohibitive, then we must determine why and proceed to place the blame where it belongs. To begin with, doctors' fees in Minnesota are reasonable excepting in isolated instances. This statement will be substantiated undoubtedly when we have the report of the Commission on the Costs of Medical Care. This lets the doctor out and an explanation for the complaint of high costs must be sought for elsewhere. There are many factors worthy of consideration, but only a few will be discussed. One which may be mentioned in passing is the nearly universal custom of our people to get, not that which they ought to get, but that which they most desire. It is ingrained in human nature to rebel against being compelled to accept something not wanted. People do not want sickness. They instinctively rebel against it when it comes. The expense incident to it, no matter how slight, is looked upon as a hardship, so they resent having to meet it even though, paradoxically enough, they settle with their doctor, hospital and druggist cheerfully and often with a genuine spirit of gratefulness. But, they complain of the very existence of such an expense just as they complain about having to pay taxes. The complaint has become accentuated because of the comforts and luxuries available and enjoyed by nearly all. It is due largely to the fact that there is a desire to use the money, and it is so used, for something else.

It is permissible to state that business and industry are very largely to blame for the complaint against the cost of sickness; for business and industry, while preaching thrift, have been inculcating habits of luxury and extravagance among the people. They have broadcast the slogan, "You must spend money to make money." While that is sound advice when the spending is for purposes of investment and trade, it is on the other hand most dishonest and demoralizing advice when applied to the purchase of articles that depreciate in value from the moment of acquisition. Business and industry have combined to sell goods, as is their function, and they sell without due consideration to the ability of the ultimate consumer to pay. How else shall we interpret the familiar advertisement, "You don't

need any money, your credit is good?" Also the constant urge to "break down sales resistance" can mean nothing but utter disregard for the thrift of the buyer.

Partial payment buying has its advantages and has made many comforts, luxuries and necessities possible to us all, but it is not an unmixed blessing. Temptation set in the path of the possible buyer by the high pressure salesman cannot be successfully resisted by the average person. Consequently, the buying public has become heavily laden with personal indebtedness. When men are struggling under a burden of debt any compulsory additional burden brings resentment and protest. This holds whether the additional burden be due to unwelcome sickness or to the necessity of replenishing the coal bin for the winter. It is not the fault of the medical profession that the people are in debt and have difficulty in meeting their obligations. Their indebtedness is due to the greed and short-sightedness of business and industry coupled with the natural weakness of human character. Business and industry have not yet learned how to know when the purchasing power of the people is becoming strained, or they have not yet developed sufficient intelligence to enable them to regulate their production and distribution with such balance as to maintain a natural demand, steady consumption and a maximum of steady employment.

This brings us to the problem of unemployment in relation to the cost of sickness. When men are idle they complain most bitterly of illness and its possible costs. They resist the incurring of debt, not knowing where they are going to find the means with which to pay.

The reduction of purchasing power is only one of the many causes for unemployment. The business world stands in close relation to it. The merging of business interests, the spreading use of labor saving machinery, the chain store movement and all similar devices have sought to effect a saving at the expense of the numbers employed and without any evidence as yet of absorption of the unemployed into other occupations. These efficiency devices mean increased production at less cost but incidentally, in company with indebtedness, they sacrifice the market by reducing purchasing power.

Another field in which industry has engaged to benefit mankind is the "safety first" move-

ment. We doctors have been enlisted to aid in this beneficent movement and right royally and loyally have we responded to the need, glad indeed if we can aid in preventing human suffering. But the movement is not an unmixed blessing any more than is the partial payment scheme, for it appears that indemnity insurance companies, with an eye to business, have discovered that modern machinery is very dangerous to men who can no longer keep in step with the rapidly moving and untiring machine. Upon careful study it has been found that the age at which man does not move in unison with the machine is for all practical purposes about forty and up. These same astute companies have also learned that men who have been injured in certain degrees, or employees who have begun to suffer slightly from the inevitable breaking down processes of life, or who show signs of requiring a lightening of their labors from any cause, are no longer safe to have around the shop. They might get hurt. Well, what to do? The simplest thing in the world of course is to raise the premium paid by the employer if he persists in having such risks around. Or, what amounts to the same thing, a reduced premium will be charged if the employer retains in his employ only men of sound body and suitable age such as are fit to meet the machinery requirements. Oh! the safety first campaign in industry is a wonderful thing in some respects. It seems that it is far better for a man to starve to death while hunting a job that can't be found than it is for him to be hurt in the pursuit of duty and at the expense of an indemnity company. So there we have the source of another goodly number of idle men who will very justly complain of doctors' bills even though they be of trifling amount. It isn't the doctor's fault that workmen are out of work. Neither is it the doctor's fault that office men are out of work in the great cause of efficiency and that for the same reason the small banker and independent retail store men are out of business. The doctor knows that all these people who suddenly find themselves without means of livelihood are going to have sickness along with their other troubles and he stands ready, as he always has, to step into the gap and aid in stemming the tide of trouble.

That the greater the number of people who are removed from gainful occupation, the greater will be the medical and tax costs of those who

are so employed is a self evident fact requiring no elucidation. The first point at which the public and the private charities will have this fact brought forcibly to their attention will be in the field of old age pensions. The question of old age pensions has engaged the attention of statesmen, politicians and organized charities for a considerable period of years. All seem to have agreed that sixty-five is the age for retirement. They will have to reduce that limit to the earlier age of forty if the present trend in the employment field continues. A disturbing thought intrudes itself at this juncture. Men at the ages of forty, forty-five and fifty are still possessed of power of procreation. Our pensioners will be fathering children born in poverty to be provided for out of our poor funds. This increase will make nice additions to our population. Another serious health problem will develop in association with the old age and idle men's pension system. Idleness fosters degenerative disease and we may expect a whole new crop of arterial disorders to appear far ahead of their normal time. Not only will physical decay begin at an earlier age than heretofore but cerebral arteriosclerosis with its mental failure will become much more prevalent than it is at present. What effect this may have upon the average age of life we are at liberty to guess. It is reasonable to suppose that the work that has been so successful in saving the lives of our children, and thereby raising the average age of life, will be neutralized, in so far as the latter gain is concerned, and the average reduced.

One more cause for complaint is the occasional predatory physician. The man who has an hypertrophied opinion of the value of his services, who has no sense of his social obligation, who charges working people fees out of all proportion to their ability to pay. He is a disgrace to the profession. If he cannot afford to treat the common people for reasonable fees then let him confine his activities to the wealthy classes, if the latter will have him, and relinquish what to him is an unprofitable practice to his equally competent but more honorable brothers. That "God tempers the wind to the shorn lamb" is something beyond his comprehension.

It would appear, then, that chief among the causes giving rise to the complaint against the cost of sickness are poverty, ignorance, moronic

mentality, greed for gain, extravagance, debt, unemployment and the occasional predatory physician. But no matter what the causes are, the plain fact is that they do exist. The problem is to know how to cure these festering spots on the body politic. To cure them will be to remove most of the ills which afflict our present civilization. Humanitarianism, which aims to tide people over difficult periods and to place them in suitable positions for self support, is commendable and helpful but certainly not curative. Paternalism, which is nothing other than governmental dictatorship applied to the personal activities of the private citizen, is worse than useless. It would encourage the support of an ever increasing number of idle people, tend to destroy initiative and to build up class distinctions. It would accentuate the trends of the rich getting richer and the poor getting poorer. Pick up your dictionary and study the definition of paternalism. Then turn to your encyclopedia for a detailed study of its origin and history. With a full understanding as to its significance you will stand aghast as you contemplate the riot it is running in this country today. You will feel the need, as never before, of a solidly united profession to contest this monstrosity at every step of the way. Socialism, a term that has been used most loosely, may be defined as a political philosophy which contemplates the substitution of coöperation for competition with an equal distribution of the proceeds. Well, if all men were created equal, physically, mentally, morally and spiritually, perhaps socialism might be made to work. Inasmuch as all these qualities obtain unequally among us, it ought to be manifest that socialism cannot work. It is the very inequality of mentality that makes possible the thought on the part of some that socialism is practicable.

The solution of our problems rests in a recognition of the principle that every individual, every organized or unorganized group, whether rich or poor, owes certain obligations to society. You cannot single out any special group, whether it be the profession of medicine or some other body, and burden it down with duties to be performed, willy nilly, for the benefit of another group and expect relief. Such a course is paternalistic and, so far as medicine is concerned, oppressive; so far as the people are concerned, demoralizing in the extreme. While recognizing

the principle of social responsibility we must none the less remember the importance of individual privilege and personal freedom. These must be preserved or the nation fails.

What the attitude of the medical profession shall be in relation to the changes taking place about us affords food for serious thought. That paternalistic encroachments have taken place is only too apparent. Especially is this true in foreign places, so much so indeed that the movement appears to be well nigh world-wide in its scope and its tentacles are reaching hungrily into our own country. It has gathered such impetus now that only a solidly organized and militant profession will be able to ward it off or so modify it as to eliminate its most pernicious features. The profession must be prepared to meet contingencies as they arise and make proper adjustments. Any trend or action tending to discourage personal initiative must be checked. Fair compensation, commensurate with the kind and quality of services rendered, must be maintained. We must "render unto Caesar those things which are Caesar's," but Caesar must render unto us those things which are ours.

The profession will not be able to successfully combat the dangers that threaten it unless it respects itself. To respect itself it must be deeply interested in its work. The degree of this interest can be measured by the general average of ability manifested by the profession in its general affairs. Thanks to the combined influence of the association of American Medical Colleges, the Council on Medical Education of the American Medical Association and the various state boards of medical licensure, the average training and inherent ability of the physician has steadily risen within the last twenty-five years. There is every reason to believe that present standards will be maintained and that the excellent quality of mentality now so apparent in the ranks of the profession will continue and become more apparent as time goes on.

It is not conceivable that men of that type will permit themselves to be placed in a position of servitude, so borne down with petty duties and so poorly remunerated that there is left neither time nor means with which to keep their knowledge and skill abreast of the best of their time. The public are insistently demanding the best in medical skill. They cannot get it by reducing the medical profession to a position in which it

is neither happy, comfortable nor self-respecting.

Our duty to ourselves and to society is to continue to maintain our high standards of efficiency; to continue, individually and collectively, to minister to the needs of sick humanity wholeheartedly and with broad sympathies, just as we have been doing since time immemorial; to continue to keep ourselves banded together for the purpose of maintaining our high ideals. The old family doctor is not gone from our midst. His pill boxes, his saddle bags, his faithful old nag are gone, but the spirit that was his still lives and carries on. Human nature does not change. It craves sympathy and understanding today just as it did fifty and a hundred and a thousand years ago. The old family doctor because of his indomitable will and great purpose in life survives and has steadily adopted improved methods of therapy as rapidly as science has made them available. He still lends a sympathetic ear, still pours oil on the troubled waters, still advises and guides in matters so intimate that none other can be admitted to confidence. Let us not mistake the discarded clothing and accoutrements of the old family doctor for the man himself. Let us ever cherish the ideal of him, so indelibly and picturesquely stamped upon our memories; let us emulate his hardy and humane virtues, always.

And now, in conclusion, we may say that as a people we are the victims of our own intelligence and insufficiencies. Our intelligence has enabled us to pry into and learn the secrets of nature and we have adapted them to our own uses. We have developed all sorts of useful and enjoyable contrivances. We have shortened space and made time of no consequence. We have rendered life more complex but altogether more comfortable. But we have not yet learned how to use our newly discovered good fortune

rationally. There is no similar experience in the history of the world, one in which a whole nation of people have become mad with a superficial material prosperity, to which we may turn for guidance. Certain fixed and immutable laws of life and conduct exist, it is true, but in the exhilaration incident to our material gains we have forgotten the spiritual and philosophical. We are caught in the mad onrush of what we call progress and our insufficiencies cloud our mental vision. We see dimly, if at all, into the significance of the turmoil in which we live. We vision problems but we fail to determine just what they are or how to solve them. We are caught in the current of a turbulent stream, being swept on whether we will or no and we haven't the faintest idea as to where we are going. As we go we struggle to keep from going under, enjoying the struggle with the exuberance of youth, but hoping nevertheless that calm waters are just ahead. When we reach them we shall have had experience, perhaps we shall have been chastened thereby, and we shall then have time for retrospective thought. We shall have gained perspective.

The prehistoric American may have been the last of a decaying race, or he may have been in the infancy of his development. We do not know. We do know that we are here in his place, in an entirely new and different world. We do not know whether, in relation to our modern life, we really are growing or beginning to go backward. The signs of decay are not wholly lacking, but let us hope that the signs of our social and political life are correctly interpreted when we speak of ourselves as an adolescent nation. We at least flatter our vanity when we accept that designation, for it presages future growth and development.

PRIMARY CARCINOMA OF THE LUNGS AND BRONCHI*

E. V. GOLTZ, M.D.
Saint Paul

IT HAS happened that I have encountered primary carcinoma of the lungs and bronchi with increasing frequency during the past few years, both in private practice and on my service at the Ancker Hospital. In fact, since I have been interested in this condition there is scarcely a month goes by without word of another primary lung cancer.

In checking up at the Ancker Hospital we could find only two cases where death had been caused by this type of cancer from 1912 to 1917, while from 1918 to the present time there were sixteen such deaths. No doubt there were more; some not diagnosed, others diagnosed but not submitted to autopsy examination and hence not proven cases as to primary or secondary growth.

This apparent local increase is noted by many authorities both in this country and Europe and some of the references as to its incidence are of interest.

Moses Barron, reporting from the records of the Department of Pathology at the University of Minnesota, states that no cases were found prior to 1912; that there were four cases or .2 per cent from 1912 to 1918 and nine cases or .9 per cent from 1919 to 1922, among a total of 4,362 autopsies, with the greatest increase during 1918 and 1919, which was the peak of the influenza epidemic.

His collected statistics in 1922 indicate also a gradual increase from .057 per cent in 1878 to .46 per cent in 1916, practically ten-fold.

Various hospital reports in this country and Canada show a marked increase in percentage of these carcinomata in total autopsies, as well as of lung carcinomata to total carcinomata since 1900, with the greatest increase since 1915.

London hospital statistics show .51 per cent in 1907, increasing to 2.05 per cent in 1925. German statistics show an average increase very similar to the foregoing with a corresponding percentage increase in lung cancer to total cancer, and generally conclude that there has been a definite increased incidence of primary carcinoma of the lungs in recent years.

Berblinger, in Jena, where the majority of deaths are followed by autopsies, found a definite increase of primary lung cancer in recent years.

Erdheim, of Vienna, where practically all deaths are followed by autopsy, states that there is a marked increase since the World War.

Taking for granted the increased incidence of primary carcinoma of the lungs it is of considerable interest to determine, if possible, if this increase is apparent or real.

The following observations favor the apparent increase:

1. Increased human longevity. The average length of life, prior to the fifteenth century, is said to have been eighteen years. This increased to forty-five years at the beginning of the nineteenth century. At present it is about fifty-seven years, ten of which have been added during the last two decades, with the resulting increase in the "cancer age."

2. Alterations in pathological classification as the result of which previously termed sarcomata are now classed as carcinomata.

3. Improved diagnosis with the resulting increase in autopsy check.

4. Improvement in sociological conditions leading to larger attendance at hospitals.

To offset these arguments favoring the apparent increase only, one can say:

1. The percentage of primary lung cancer compared with the total cancers has increased three or four times.

2. The lung tumors formerly classified as sarcomata are really rare.

3. A great number of lung carcinomata are still found only at autopsy.

4. The hospital routine of the Old World has not varied to this extent in the last twenty years. Consequently one is impressed with the thought that this increase is actually a real one and that it is in some manner due to etiological conditions.

ETIOLOGY

When the cause or causes of cancer in general become known we will be better able to explain this marked increase in primary lung cancer. However, since this increase recently over other

*Thesis presented before the Minnesota Academy of Medicine, St. Paul, April 9, 1930.

forms of cancer we may look for those etiological factors of a chronic irritative nature which themselves have shown an increased incidence in recent years.



Fig. 1. Case 1. August 11, 1926. Large tumor involving almost entire right lower lobe; no evidence of fluid or metastases.

These may be grouped as: (1) Bacteriological; (2) chemical; (3) mechanical; (4) possibly radiological.

The chief bacteriological factor is probably influenza. Statistical evidence points to a definite increase of lung cancer following the great epidemic of 1918 and 1919 and histological examination by various authorities (Askanazy-Goldzieber and Myer) suggest changes resembling precancerous epithelial proliferation in the lungs in influenza.

Chronic bronchitis, bronchiectasis, fibroid pneumonia, healed tuberculosis and syphilis may predispose. The majority of observers everywhere note the great increase in lung cancer during and after the epidemic of 1918 and 1919.

Chemical and mechanical irritation is largely by way of inhalation. Long continued inhalation of tobacco smoke must be considered, although as yet there is no definite proof of this. Road dust, containing tar, may prove to be a potential factor.

Kimosa has produced lung cancer in rabbits and guinea pigs by insufflating tar through a tracheotomy wound in his experiments. Half a million tons of tar are used annually on the roads

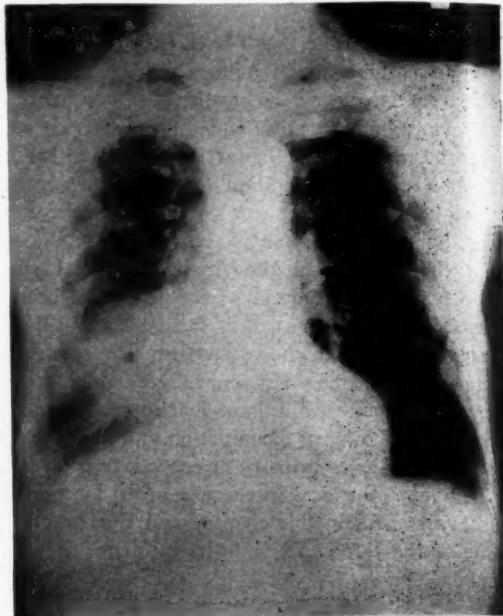


Fig. 2. Case 2. March 18, 1929. Large fairly localized tumor extending from the right border of the heart into the base of lung, with probably atelectasis of the lower lobe. No fluid or metastases.

of this country and the fact that carcinoma of the lung is very rare in places like Hong Kong and Singapore where the roads are not tarred is suggestive. The fumes of motor exhaust are mentioned by many, but as yet there are no proofs. Workers in mines and other dusty occupations in certain regions show a definite increased incidence; thus, in Schneeberg, Saxony, it was claimed that 50 per cent of the old miners died of lung carcinoma. The Saxony Cancer Committee *x*-rayed 154 cases of long-time mine workers; twenty-one of these died; thirteen of these deaths were from lung cancer, as confirmed by autopsy, and two were diagnosed as such but did not come to autopsy. This was in marked contrast to the rest of the population, in whom there was practically no lung cancer. The arsenic contained in the cobalt and bismuth mined was thought to be the principal etiological factor.

Finally, "gassing" in military service is mentioned as being a factor in the marked increase since the war.

PATHOLOGY

Many observers classify primary lung cancer as arising from: (1) The columnar epithelium

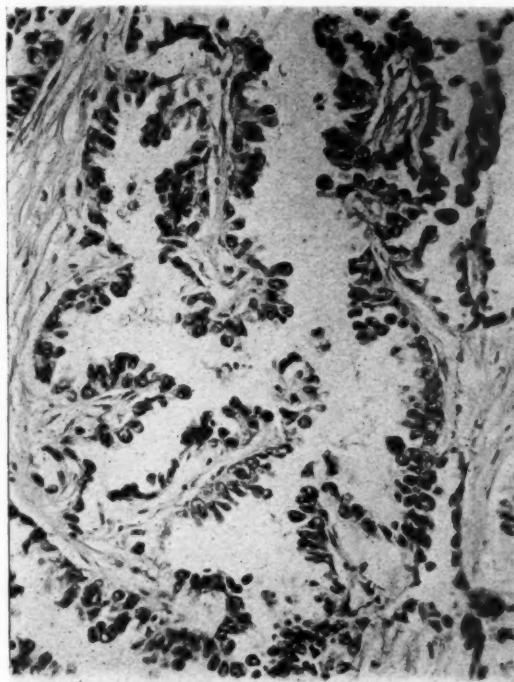


Fig. 3. Case 2. Microscopic section of lung tumor. Marked tendency to glandular structure with various types of epithelial cells.

the extent of an entire lobe. Occasionally its growth will be found between the lobes only, and overlapped by them. In the late cases in which the tumor mass has attained large size and has



Fig. 4. Case 2. Microscopic section of liver with similar glandular formation and massing of epithelial cells.

lining the bronchi; (2) mucous glands of the bronchi; (3) squamous alveolar epithelium.

This distinction is difficult in many instances as the type is largely determined by the character of the cells composing the tumor mass and these may vary from squamous in some portions of the tumor to cuboidal in others. Metaplasia is easily produced in these cells by chronic inflammation and is spoken of by Hansemann as "histologic accommodation." Most authorities believe that the great majority of these tumors arise in the mucosa of the bronchi. Erdheim in 1926 stated that they were all bronchogenic but that they were prone to metastasize in the lung.

1. The type arising from the bronchial epithelium may vary greatly in size, color and consistency. It may remain as a small projecting mass in the bronchus and yet may have metastases to the liver, kidney, adrenals, etc., or it may grow into the lung tissue and displace it even to

caused much distortion it may be difficult to determine the exact point of origin in the bronchus but careful search will usually reveal a fungoid ulcerating growth in its wall. Sooner or later there is obstruction to the bronchus; if this is partial there will be dilatation of the distal portion of the bronchus from retained secretion and bronchiectasis results which may go on to abscess formation. If obstruction is complete atelectasis results. Broncho-pneumonia finally complicates the picture and is usually the immediate cause of death.

2. The type arising from the bronchial mucous glands is rare and usually limited chiefly to the walls and especially the sub-mucosa of the bronchi. These tumors and their metastases are characterized by excessive mucous secretions and are more or less slimy in appearance. I have not seen this type but Klotz reported two cases and Weller states that they are not infrequent.

3. Those arising from the pulmonary alveoli may be diffuse, involving the larger part of the lobe, or multiple and nodular, involving a single lobe or the entire lung. Ewing states that these

growth is slow, allowing time for metastases before death, and also because of the abundant supply of blood and lymph vessels in this region. The regional glands are most often involved and

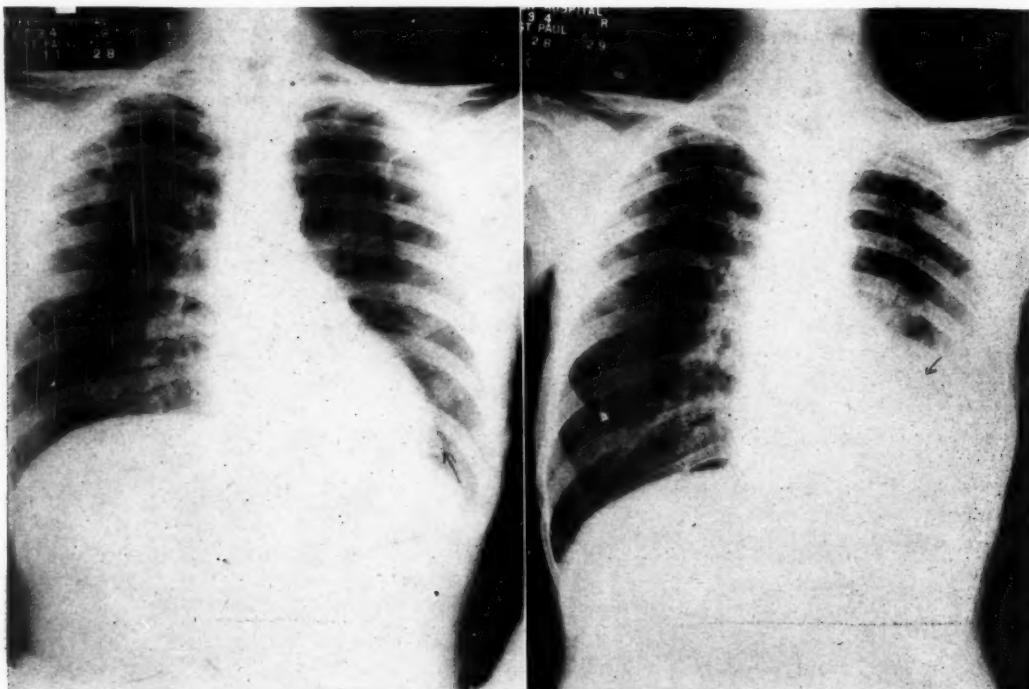


Fig. 5. Case 3. October 11, 1928. Apex of tumor just visible beyond heart shadow but not interpreted as such at this time.

Fig. 6. Case 3. October 28, 1929. Large diffuse tumor mass. Same case one year later.

masses are often composed of cuboidal pleomorphic epithelial cells, simulating cells found in the tumor arising from bronchial mucosa. There is, therefore, great possibility that many of this type are metastatic and are primarily bronchiogenic, especially if they are multiple and of rapid growth. Pleural involvement directly by extension or metastasis, with pleural effusion, occurs in about one-half of the cases, and approximately one-third of these effusions are bloody. Rapid recurrence of this bloody fluid is characteristic. Erdheim reports elevation of the diaphragm frequently and thinks it due to paralysis resulting from phrenic nerve involvement. It is quite possible that this may also be a result of extensive lung atelectasis.

METASTASES

Primary carcinoma of the lung is very prone to metastasize, and its metastases are widely distributed. This is due to the fact that the tumor

the extrathoracic glands next. Of the viscera the liver and suprarenals are the favorite sites with the pancreas next. The parietal pleura often shows metastatic involvement but may also suffer from direct spread. The vertebral column and according to Erdheim the proximal ends of the long bones, especially the femur, are frequently affected and are often overlooked at autopsies because of the difficulty in obtaining consent to osseous dissection. Of unusual interest is the high percentage of brain metastases as compared with cancer elsewhere in the body. This is explained by the fact that the cells from the lung are carried by the blood stream directly to the brain while metastatic cells from elsewhere in the body are largely sieved out by the lungs and never reach the central nervous system. Because of this marked tendency to early and frequent cerebral metastasis the first marked symptoms may be those of brain tumor and may easily

undergo operation. Occasionally metastases occur in the lung apart from direct spread and may be mistaken for the primary growth. The rapid increase in size and number speaks for metastases.

SYMPTOMS AND SIGNS

Age and Duration. The majority of the instances occur between the ages of forty-five and sixty-five and the average duration is seven months. The youngest proven case by Simpson was thirteen and the oldest seventy-seven. The shortest duration, reported by the same author, was three days, while he reports four cases living four years. Males predominate over females three to one.

The first symptoms may come on suddenly with hemorrhage or may resemble acute pleurisy or pneumonia, or they may be gradual in onset with cough, pain and dyspnea, and may be treated for bronchitis over a period of months. Finally this cancer may be entirely latent and be manifested by its metastases in the brain, bones or viscera.

The physical signs are always confusing at best. In early bronchial tumor, with most distressing symptoms, chest examination may fail to explain them. On the other hand, there may be present all the signs of broncho-pneumonia, atelectasis, bronchiectesis, lung abscess and pleural exudate, depending on the location, size and complications of the tumor.

Cough is the most frequent symptom but may not appear at all and may or may not be characteristic. However, recurring paroxysms of cough with intense discomfort, pain and dyspnea ending with only a small amount of mucous, sometimes blood-tinged and continuing day and night should be strongly suggestive of bronchial cancer, especially when this occurs in an individual in the cancer age.

Sputum is usually scanty and mucoid early, becoming muco-purulent or bloody and more abundant as infection and complication supervene.

Pain next to cough is the most important and the most frequent symptom. It may be of all grades of intensity and of various types. The site of the pain is usually the chest but may be referred to the neck, back, abdomen, legs or arms and may be due to various causes, as nerve pressure, pleural irritation, pericardial inflammation and cord and nerve plexus involvement.

Wasting occurs in 50 per cent of the cases and may begin early.

Fever is often found early, though low grade until complications arise.



Fig. 7. Case 3. Cross section left lung six weeks later.

Dyspnea may occur early with cough, later it is influenced greatly by the degree of obstruction to the bronchus or pressure on the lung from the tumor growth, pleural fluid, etc. It may occur in paroxysms resembling asthma.

Less constant symptoms are cyanosis, dilated veins due to pressure in the mediastinum with or without local edema of the head, neck or upper extremity. Laryngeal paralysis and dysphagia may occasionally occur as may unequal pupils and occasionally clubbing of the fingers or other signs of pulmonary osteoarthropathy in lingering cases.

Leukocytosis much over 12,000 is only present in the later cases and is due then to an associated infection.

DIAGNOSIS

This is often difficult and many so-called "silent types" are easily overlooked and are only found at autopsy after their metastatic activity

prostate are slower of growth than their offspring.

Physical signs are often indefinite early; generally speaking malignancy of the lung should be

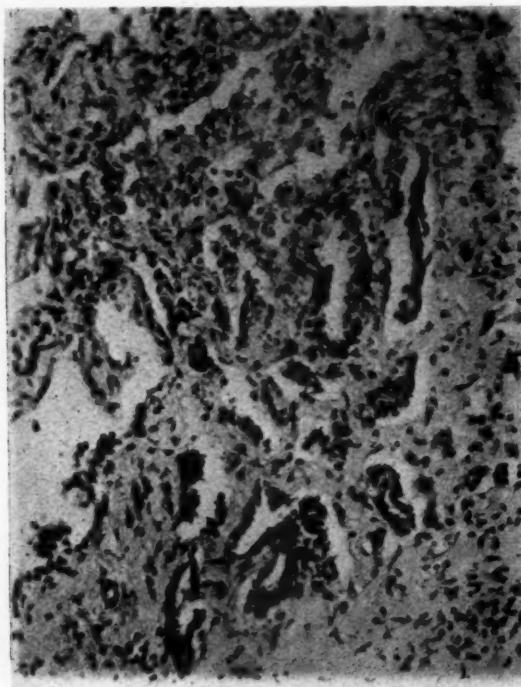


Fig. 8. Case 3. Low power. Microscopic section.

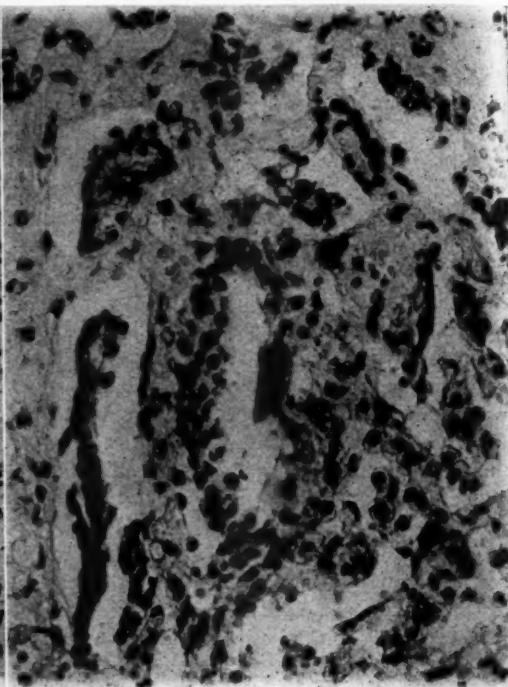


Fig. 9. Case 3. High power. Microscopic section.

in the brain, bones or other distal parts has become the center of interest to all concerned.

A careful history will usually bring out one of the cardinal symptoms and focus attention on the lungs so that the course and physical signs, together with the special examination by the bronchoscope, *x*-ray and intrabronchial injection of lipiodol will give conclusive evidence. The sputum will occasionally furnish the diagnosis with tissue shreds. Biopsy through the bronchoscope, if possible, gives the most conclusive evidence. This is also true of superficial glandular biopsy, but, unfortunately, while tuberculous glands in the neck usually mean very little pulmonary involvement, in the case of carcinomatous glands, autopsy shows extensive lung lesions. While it often happens that the primary growth in the bronchus is overlooked and its metastases discovered, so also certain metastatic lung tumors are called primary because their inconspicuous parents in the thyroid, thymus or

considered when either incessant cough, pain, dyspnea or blood-tinged sputum occurs in an individual of the cancer age without satisfactory explanation. Repeated *x*-ray films, both antero-posterior and lateral should be had, and bronchoscopic examination should be insisted upon after first ruling out aortic aneurysm. Bloody pleural fluid means malignancy in practically all chronic cases not associated with trauma.

TREATMENT

The treatment for this condition demands early diagnosis and since carcinoma of the lungs is usually carcinoma of the larger bronchi, local cautery and possibly radium by a skillful bronchoscopist offers the best hope. Brunn found there were at least twenty-eight cases of lobectomy and other surgical interventions in the literature. Sauerbuch had one patient living five years and another three years after operations; obviously the cases must be carefully selected.

Deep *x*-ray therapy is useful at times to relieve pain, but, while subjectively of benefit, progress is not affected.

I have selected the following three case re-

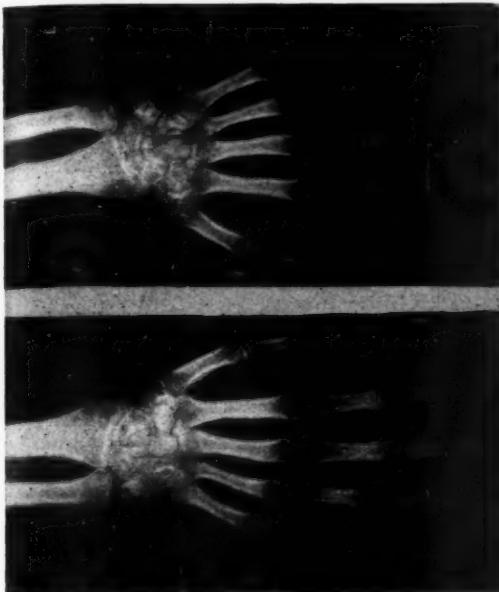


Fig. 10. Case 3. Secondary hypertrophic osteo-arthropathy; clubbing of fingers with spurring of terminal phalanges and periosteal proliferation along carpal and metacarpal bones.

active pericarditis and died March 21, 1927. Autopsy showed no other primary cancer and no metastasis except in the regional glands and in the pleura.

Case 2.—This patient complained chiefly of stomach trouble and pain in the kidney region and was admit-



Fig. 11. Case 3. Similar changes in the foot.

ports which represent various clinical pictures with *x*-ray films, slides and gross specimens of the last two:

Case 1.—A male, aged 61, by occupation a printer, was first seen November 15, 1926. He complained of severe paroxysms of cough, slight dyspnea on exertion and pain in the chest present for the past four weeks with loss of ten pounds in weight. The cough was more less characteristic in that it occurred in frequent prolonged paroxysms with much dyspnea, moderate cyanosis and pain in chest, ending finally with the expectoration of a small amount of sticky, mucoid material which was occasionally blood-tinged. He also complained of occasional pain on swallowing food. He had had influenza in 1918.

The esophagus examined with thick barium under the fluoroscope and was normal. The heart outline was somewhat enlarged to the right and the right lower lobe was as is seen in Figure 1. The afternoon temperature was 99.2; pulse 90; respiration 28. The red blood cell count was 4,000,000; the white count, 8,200. A tentative diagnosis of lung cancer was made, and bronchoscopic examination advised. A biopsy specimen proved to be carcinomatous. Deep *x*-ray therapy seemed to diminish the size of the mass and to relieve the pain, but the course was progressively downward. He developed pleural pain, bloody pleural fluid and an

ted to the Ancker Hospital on March 13, 1929, with a provisional diagnosis of gastrointestinal malignancy and arteriosclerosis. He was a laborer seventy-five years of age. His chief complaints on admission were weakness, dyspnea, loss of twenty pounds in weight, constipation, pain in the right kidney region and epigastric distress. Four months previous to admission he had had an appendectomy and was well for a month. Three months prior to admission he developed influenza and had coughed and raised considerable sputum since that time. There had been no hemoptysis. Two weeks prior to admission his abdominal pain had become worse and continued to be his chief complaint until his death on May 21, 1929.

The liver was palpable and nodular and a definite area of consolidation could be outlined just to the right of the right heart border, and corresponding to the inner one-half of the right lower lobe. *X*-ray of the gastrointestinal tract was negative and the chest film on March 19, 1929, showed a large fairly localized shadow extending from the right border of the heart into the base of lung, with probably also some atelectasis of the lower lobe. During the stay in the hospital he developed bloody sputum and had several small hemorrhages and later also a bloody pleural fluid which recurred rapidly after aspiration. It was only a few weeks before death that he complained of pain in the right chest. The red blood cell count was 4,000,000;

white, 8,000 until one week before death, when it reached 10,800. A diagnosis of primary lung cancer was made. Autopsy verified the diagnosis and in addition metastases to the liver were found.

*Case 3.**—This case represents one of the so-called "silent type," with no or very few symptoms sugges-



Fig. 12. Case 3. Same periosteal proliferation in the tibia and fibula, showing absence of joint involvement.

tive of lung pathology. Many of this group are only diagnosed at autopsy. A female, aged 42, a house-keeper, was admitted to Ancker Hospital, October 9, 1928. She left under protest November 28, 1928, with a diagnosis of pulmonary osteo-arthropathy and mitral regurgitation. Her history stated that her hands, feet, wrists, ankles, and knees had been painful and slightly swollen since last April. Also, that since the onset of her illness she had lost thirty pounds in weight and had lately developed a dry unproductive cough. One year ago she had had a severe bronchitis from which she recovered, after which the joints became painful and swollen. After leaving the hospital she was treated outside for infectious arthritis with the removal of her tonsils and teeth. She did not improve, however, and was readmitted in October, 1929, having slowly failed since leaving the hospital the previous November. The joint trouble at this time was still the

*Osteo-arthropathy.—The rheumatic complaints of Case 3 were apparently on a pulmonary arthropathy basis. Wells reports references to this condition in thirteen cases out of ninety selected at random and states that there is a definite hyperplasia of the pituitary gland. Brunn actually found metastases in this gland in one case.

The close association of the changes in this condition to those of acromegaly warrants a more careful examination both macroscopically and microscopically of this gland at autopsy in these cases. (Figs. 10, 11, 12.)

principal complaint but she still had the dry, unproductive cough and had lost more weight and was quite weak. On October 29, 25 c.c. of thin bloody fluid was aspirated from the left pleural cavity. The red blood cell count was 4,000,000, white 8,400, and Hb 70 per cent. The course was progressively downward; she died December 13, 1929. Autopsy showed primary carcinoma of the left bronchus with involvement of the diaphragm and parietal pleura.

BIBLIOGRAPHY

Adler, I.: The diagnosis of malignant tumors of the lungs. *New York Med. Jour.*, 53, 173 and 204, 1896.

Barron, M.: Carcinoma of the lung: Study of its incidence, pathology and relative importance; report of thirteen cases at necropsy. *Arch. Surg.*, 4:624 (May), 1922.

Berblinger, W.: Die Zunahme des primären Lungentumors in den Jahren 1920-1924. *Klin. Wchnschr.*, 4:913, 1925.

Brann, H.: Primary carcinoma of the lung: Report of two operative cases. *Arch. Surg.*, 12:406 (Jan. pt. 2) 1926.

Eppinger, H.: Lungencarcinom, *Ergebn. d. allg. Path. u. path. Anat.*, 8:349, 1904.

Fried, B. M.: Primary carcinoma of the lungs: Further study, with particular attention to incidence, diagnosis and metastases to the central nervous system. *Arch. Int. Med.*, 40:340 (Sept.), 1927.

Goldzicher, M.: Ueber Basalsellenwucherungen der Bronchialschleimbaut. *Centralbl. f. allg. Path. u. path. Anat.*, 29:506, 1918.

Jackson, Chevalier; Tucker, G.; Clerf, L. H.; Lukens, R. M.; and Moore, W. F.: Bronchoscopy as an aid to the thoracic surgeon. *Jour. Am. Med. Assn.*, 84:97 (Jan. 10), 1925.

Kimura, N.: Artificial production of a cancer in the lungs following intrabronchial insufflation of coal tar. *Japan. Med. World*, 3:45, 1923.

Klotz, O.: Cancer of the lungs; with a report upon twenty-four cases. *Can. Med. Ass'n Jour.*, 17:989, 1927.

Meyer, W.: Chronic pneumonia or tumor of the lung. *Arch. Surg.*, 10:431 (Jan. pt. 2), 1925.

Seecof, D. P.: The value of examining body fluids for tumor cells. *Proc. New York Path. Soc.*, 24:3, 1924.

Seyfarth, C.: Lungenkarzinome in Leipzig, Deutsche med. Wchnschr., 50:1497, 1924.

Von Hansemann: Demonstration einger. seltener Präparate. *Verhandl. d. deutsch. path. Gesellsch.* 7:265, 1904.

Weller, C. V.: Primary carcinoma of the larger bronchi. *Arch. Int. Med.*, 11:314 (March), 1913.

Age incidence in carcinoma. *Arch. Int. Med.*, 12: 530 (Nov.), 1913. General Review—The pathology of primary carcinoma of the lung. *Arch. Path.* (March), 1929.

THE CHILDHOOD TYPE OF TUBERCULOSIS

EUGENE F. JOHNSON, M.D.
Nopeming, Minnesota

MUCH has been written, recently, about the relation between the adult and childhood types of tuberculosis, and the outstanding work in this field has been done by Chadwick,¹ McPhedran,² Myers,³ and Opie et al,^{4,5} who have published their conceptions of this relationship.

This paper does not represent any new work, but will illustrate further and in a way bear out the observations of the men mentioned above.

All of the cases to be cited and illustrated have been or still are patients at the Nopeming Sanatorium.

The essential differences between the adult and childhood types of tuberculosis as shown by the previously quoted authors are as follows:

The childhood type is the result of a primary infection with the tubercle bacillus and for this reason it is the type of tuberculosis that occurs usually in children and only rarely in adults, while the adult type of tuberculosis is the result of a reinfection and is the kind of tuberculosis usually found in adults and only rarely in children.

The initial or primary infection may be localized in any part of the lung, whereas the reinfection lesions usually are localized in the apices and extend along the pleura. The first clinical manifestation, however, is often below the clavicle.

The associated tracheobronchial lymph nodes are always involved in the childhood type although this may not always be demonstrable, while in the adult type these glands are not involved except occasionally in the terminal stage.

Caseous lesions in the primary infection type usually become calcified or encapsulated in fibrous tissue, whereas this kind of lesion in the reinfection type is followed by excavation or fibrosis, or both.

Infiltrated areas commonly resolve, leaving trivial or no scars except for foci of caseation which calcify in the childhood type while in the adult type infiltrated areas resolve with the production of more or less fibrous tissue.

The primary infection carries with it a good prognosis, while the prognosis of the reinfection

type is poor if it occurs in children or adolescents.

Bearing these differences in mind, it is also noteworthy to consider the fact that the tuberculin reaction is 80 per cent positive in children of families where there is an open case of tuberculosis and only 20 per cent positive in children of families where no tuberculosis exists.^{4,5}

This knowledge becomes important when we realize that over 50 per cent of boys and girls in the teen age with the adult type of tuberculosis also have definite evidence of a previously existing childhood type of tuberculosis manifested by calcifications present in the lungs.

We present, as further support of the above mentioned facts and differential criteria between adult and childhood types of tuberculosis, the following cases of primary tuberculosis in children and in one adult.

Case 1.—B. H., a white female, four years of age. The mother has tuberculosis, also a sister, both of whom are in the Sanatorium. This child has always been very well and active, but because of contact with her mother, she has been under close observation. She is entirely free of symptoms, temperature and pulse are normal, and she is very well nourished and even overweight; physical signs are absent. Mantoux test strongly positive with 0.01 mgm. tuberculin. Figure 1 shows a sharp inflammatory reaction in the right upper lobe surrounding a dense outgrowth from the mediastinum, which is in all probability a lymphadenitis.

This case illustrates tuberculosis of the tracheobronchial lymph nodes rather massive in character, and falls into lesion F of McPhedran's⁵ classification of pulmonary lesions in childhood and adolescence. The prognosis in this case is serious, because of the danger of caseous pneumonia or miliary tuberculosis developing.

Case 2.—L. A. K., a white female, three and a half years of age, has been at Nopeming Sanatorium eight months. The mother died of tuberculosis. The patient has never had any symptoms of disease. Physical examination is negative, except for a small area of impaired resonance just below the left clavicle. The von Pirquet test is 3 plus. The child is growing rapidly, and is overweight for her age and height. The lesion was accidentally discovered in the course of a routine examination, which was made because of exposure to the mother. X-ray of the chest, shown in

Figure 2, reveals a rather diffuse, massive, childhood type of tuberculous infiltration at the level of the left clavicle.

The prognosis in this case is good unless the lesion progresses. Associated, demonstrable, uncalcified nodes, especially if multiple, would in-

tuberculosis. Symptoms began one year before admission with a persistent, productive cough. Expectoration was profuse and consisted of purulent material. There was a history of frequent respiratory infections and failure to gain weight.

Examination of chest shows impaired resonance at both bases, exaggerated breathing and coarse râles.

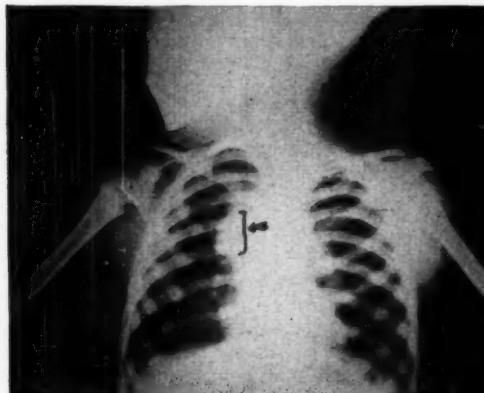


Fig. 1. Hilus enlargement.



Fig. 2. Diffuse childhood type of tuberculous infiltration.



Fig. 3. Diffuse childhood type of tuberculous infiltration.



Fig. 4. Calcified node (left). Blurred cardiac margins (right and left).

dicate a grave prognosis. There is danger that a confluent bronchopneumonia or a miliary tuberculosis may develop.

Case 3.—J. S., a white male, five and a half years of age, has been at Nopeming three years. The father has tuberculosis and is also at the Sanatorium. Symptoms began in this boy in 1926 following an attack of bronchopneumonia. A persistent cough followed with a moderate loss of weight. Chest examination in 1927 showed impaired resonance on the right side toward the base, suppressed breath sounds, but no râles. The von Pirquet test is strongly positive. At the present time he is gaining weight, has no symptoms, and is growing steadily with no positive physical signs. X-ray examination shows a diffuse tuberculous infiltration which is of the same type as shown in Figure 2.

The photograph of this x-ray (Figure 3) does not show the lesion as well as the negative.

Case 4.—C. K., a white male, nearly four years old, has been at Nopeming one year. The mother died of

The von Pirquet test is strongly positive. At the present time the child is doing very well, but still coughs slightly and raises small amounts of purulent sputum early in the morning. Weight and temperature are normal. Sputum has always been negative. Guinea pig inoculations were negative.

X-ray of the chest (Figure 4) shows blurring of both right and left cardiac margins due to chronically dilated bronchi characteristic of bronchiectasis. At the level of the third rib, anteriorly, next to the cardiac margin on the left side, is a discrete, circumscribed area of increased density due to a calcified, tuberculous, hilus lymph node.

This is the same type of childhood tuberculous lesion illustrated in Case 1, plus bronchiectasis.

Case 5.—S. K., a white female, 14 months old, has been at the Sanatorium two and a half weeks. The mother has advanced tuberculosis, which was diagnosed before the child was born. After the birth of the child,

the mother was advised by a doctor to nurse her child. When the child was eight months old, the mother became too weak and ill to care for it, and was sent to hospital. The infant did quite well until ten months old, when she became weak, ran a fever, refused to eat, and lost interest in things.

Physical examination showed impaired resonance in

began in 1929 with a persistent, productive cough, slight fever and pleuritic pains. There was no weight loss. Chest examination showed no change in resonance or breath sounds, but a few coarse râles in the left base. The von Pirquet test was positive. The patient was at Nopeming six months, gained weight and developed normally. Chest examination was nega-



Fig. 5. Tuberculous consolidation—wedge-shaped.

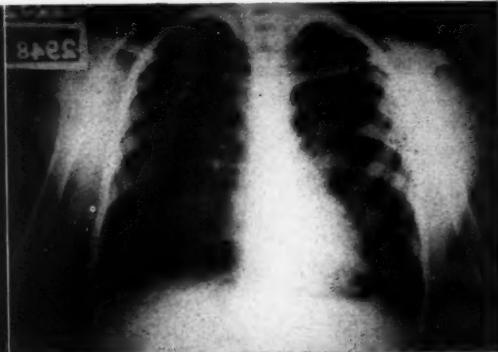


Fig. 6. Focal tuberculous calcified nodule.



Fig. 7. Generalized mottling of miliary tuberculosis.

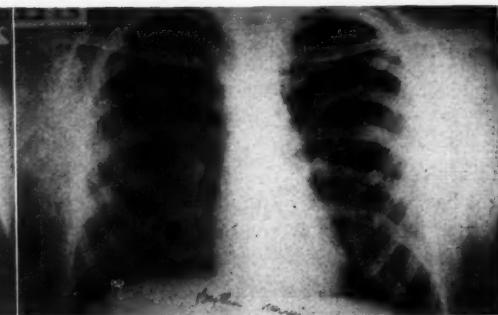


Fig. 8. All mottling has cleared up.

the middle portion of the left lung, suppressed breath sounds, but no râles. The von Pirquet test was strongly positive. After being in the hospital six weeks, she developed all the symptoms of meningitis. Her temperature constantly was 100° to 106°, pulse 160. Spinal fluid was under increased pressure with a cell count of 10 per cu. mm. After meningitis symptoms had been present for two weeks, she died. The diagnosis was confirmed by autopsy. Figure 5 shows a tuberculous consolidation of the middle portion of the left lung.

This type of lesion falls into Class C in McPhedran's⁵ classification. The prognosis in this type of case is uncertain, usually retrogressive, but in Case 5, tubercle bacilli entered the blood stream and caused tuberculous meningitis.

Case 6.—L. M., a white female, six and a half years of age. The mother died of tuberculosis. Symptoms

tive and there were no symptoms on discharge. Figure 6 shows a calcified nodule in the sixth intercostal space near the left cardiac margin, which makes this case one of Type A of McPhedran's classification.

The prognosis in this type of case is good, except that a caseous non-capsulated focus in an infant is serious. Associated lymph node involvement is recordable if calcified. If caseous, they are recordable only if much enlarged.

Case 7.—B. N., a white female, aged 13, has been at the Sanatorium a year and a half. There was no history of exposure to tuberculosis obtainable. She was well until June, 1928, when she developed a severe, persistent, productive cough, accompanied with fever, anorexia, loss of strength and weight. Fever has never been over 100°. Mantoux 4 plus with .001 mgm. old tuberculin. X-ray plates taken July 3, 1928, show a generalized miliary mottling throughout both lungs. A plate taken November 28, 1928, is shown in Figure 7.

Due to the fineness of the mottling and the poor film, the miliary lesions can be seen only with difficulty in the photo, although they are very definite in the x-ray film. Figure 8 is another x-ray of this patient taken March 11, 1930, which shows no parenchymal pathology and the only abnormality present is possibly a widened hilus area.

striking decrease in the inflammatory reaction in the left hilus area. The circumscribed area of increased density is seen at the level of the clavicle. The last plate, taken February 18, 1930, and shown in Figure 11, shows a normal hilus area with a small calcified opacity just behind the clavicle. The inflammatory shadow in the hilus area was undoubtedly made up of several

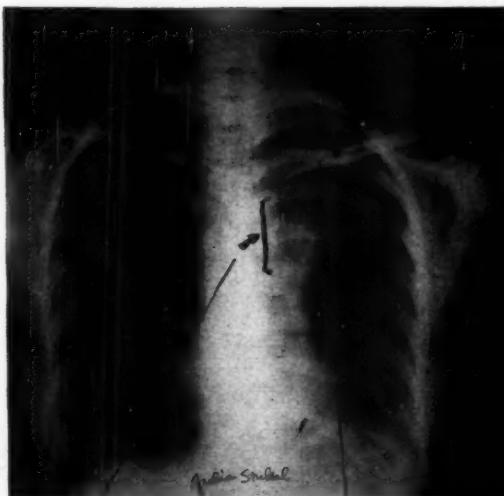


Fig. 9. Calcified lesion (left apex). Inflammatory reaction in left hilus area.



Fig. 10. Calcified lesion.

Recovery in this type of case is extremely rare. In this respect Case 7 is unusual because the patient has at the present time no symptoms and her general condition is good. The intracutaneous test is markedly positive. What future tuberculous trouble this patient will have, would be of great interest to know.

Case 8.—J. S., a white young woman, twenty-four years of age, has been at Nopeming three months. There has been no history of exposure to tuberculosis. Symptoms began in September, 1929, with cough, weakness, and loss of weight and strength. Chest examination on November 15, 1929, showed a normal right lung. On the left side there was impaired resonance extending to second rib and the fourth dorsal spine with bronchovesicular breathing but no râles. The sputum was positive for tubercle bacilli. The patient is a strictly bed patient and is doing very well, gaining in weight and symptom-free. The sputum is still positive. The interest in this case lies in the fact that it belongs to the adult type of tuberculosis, but has the usual location of the childhood type. It is also interesting to note that the lesion is clearing up rapidly. Figure 9 shows an inflammatory reaction in the left hilus area with dense lines extending into the apex to a circumscribed area of increased density. This plate was taken November 15, 1929. Figure 10 is another x-ray picture taken seven weeks later, which shows a

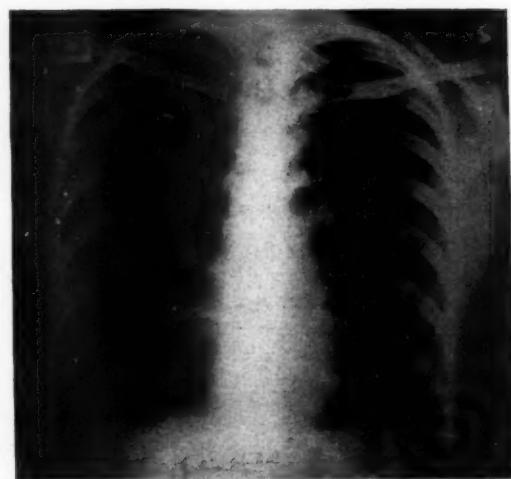


Fig. 11. Calcified lesion.

enlarged tracheo-bronchial lymph nodes together with an inflammatory exudate in the adjacent parenchyma.

This is a case of reinfection because a ghon tubercle is seen in the apex which is the primary lesion. This case illustrates what can be done towards the healing of a reinfection type of tuberculosis if diagnosed and treated early.

The prognosis in such cases is dangerous if the lesion is multiple and occurs in a child. In this case the prognosis is excellent.

In conclusion, it may be of value to state the basis upon which the diagnosis is made: History, symptoms, physical signs, Mantoux test, x-ray evidence, and exclusion of other conditions, which may produce similar symptoms.

This paper is offered as illustrative and confirmatory evidence of the work of the authors previously mentioned.

REFERENCES

1. Chadwick, H. D.: The childhood type of tuber-

closis. Diagnostic Aids of National Tuberculosis Association.

2. McPhedran, F. M.: The diagnosis and classification of pulmonary tuberculosis in childhood and adolescence. *Am. Rev. Tuberc.*, 20:532, 636, 1929.
3. Myers, J. A.: Relationship between childhood and adult types of tuberculosis. *Minn. Med.*, 13: 215 (April), 1930.
4. Opie, E. L., et al.: Tuberculosis in public school children. *Am. Rev. Tuberc.*, 20:413, 420, 1929.
5. Opie, E. L., Hetherington, H. W., McPhedran, F. M., and Landis, H. R. M.: A survey to determine the prevalence of tuberculous infection in school children. *Am. Rev. Tuberc.*, 20:421, 510, 1929.

Years ago, Gustave Le Bon wrote a small classic called "The Crowd," a study of the popular mind, in which he held that a crowd cannot be compared to the individuals that make it possible; that the mean average is probably of little value, as the new character of a crowd takes on new features and the new average is below that of the mean. One learns from Le Bon that a wide chasm may separate a great surgeon from an orderly and yet, as to character, the more lowly one may be the better of the two; that men seem to take to the primitive in the mass; and that crowds may be composed of units spread out over a wide territory held together by a common emotion. All this helps in trying to understand medical assemblages. Doctors in their home environment may be individually men of great judgment and keen to see the dangers of the future. When brought together in the mass, however, they seem to take on rather childlike qualities, as may be seen by their restlessness, tendencies to run in and out, irritation over some mechanical error, and above all their opposition to an address pointing out to them the weaknesses in their nonprofessional outlook. Under the spell of a celebrated speaker or a well known personage, I can think of no audience more quickly led than that of a group of medical men. This was illustrated the other day at Detroit when the powers of the Interstate Post-Graduate Assembly conferred on Henry Ford the honorary title of Doctor before an audience of nearly 5,000 physicians. The crowd went wild and clapped its hands and shouted in childish enthusiasm. Mr. Ford stood smiling amidst a number of celebrated medical men

while Dr. Deaver, his picturesque personality all aglow, delivered the bestowal address. The industrialist said not a word, but bowed and retired from the scene, as a mighty roar of approval followed. This idea is covered in Gustave Le Bon's book. Had any member, prominent or obscure, of that august gathering arisen and told this shouting crowd that they were about to award a great honor to one who had lately criticized their whole profession rather harshly in a series of syndicated articles, written on decidedly slender knowledge, and that in Detroit he had built a hospital to controvert directly the medical profession's idea of how a hospital should be run and that in the medical fraternity in his city there was more than one doctor who felt decidedly hostile to his attitude—that member would have been summarily dealt with.

Mr. Ford is a great inventor who made a good car that has carried many a doctor efficiently to his destination. I doubt if Mr. Ford ever constructed his car as a benevolent gesture. But I should like to ask if Behring would not have been a millionaire if he had patented diphtheria serum? Would not Roentgen have been more of a Croesus than Ford if he had received \$20 on all x-ray outfits and a royalty on the plates? Where would the man be who invented the vaginal speculum if he had patented it? What about Banting and a cent on every unit of insulin? Any one of these men could be where Ford is if he had said he chose to run that way. Always we overlook our own great discoverers.—HALL, HARRY M.: Descartes was right. *A. M. Assoc. Bull.*, 24:233.

OCULAR MANIFESTATIONS OF HYSTERIA IN CHILDREN*

JOHN M. ROBINSON, M.D.
Duluth, Minnesota

A TEN year old boy whose sister had recently returned from a school for the blind suddenly lost the sight in one eye. When examined a fortnight later the vision of the right was normal while with the left eye he counted fingers only at a distance of two feet. A girl of twelve was shaken up in an automobile accident in which her father was killed. A month later she appeared complaining of poor sight. The vision of each eye was less than 20/200. In both of these patients the objective findings were entirely negative; the functional tests suggested psychic disturbance, and complete recovery eventually occurred in both children. Similar instances are not wanting in biblical literature; in our daily press similar recoveries are still occasionally chronicled under the miraculous.

Now differing not in kind, but in degree only, are the numerous complaints emanating from children, seven to fourteen years of age, a period to which this discussion is largely limited, of blurring and misty sight with the vision by the test chart ranging from 20/30 to 20/70.

Brandenwell Carter, after an extended survey, wrote, "The fact with which I have been most impressed is the existence in London of the very large number of children with sub-normal vision, for which their errors of refraction were insufficient to account." In this connection Kerr¹ refers to an examination made by him of 330 healthy boys, in which group seven were found with vision of only 20/50 or thereabout, and with nothing to explain the deficiency, but in all of whom full recovery occurred within a few months without treatment. Wilson² located an epidemic of nine or ten such cases which he ascribed to under-feeding, poor housing and post-war depression. Katz³ says that 4 per cent of Russian children exhibit at one time or another these visual peculiarities. In health and mental balance the children of Minnesota probably equal any in the world, yet from a recent survey of fifteen thousand the writer ventures the opinion that this particular manifestation of

the ancient neurosis is nearly as common with us as Katz found it to be in Russia.

In reviewing my records of 250 consecutive refraction cases in children, completed under atropin, hysteria, or more elegantly expressed psychic amblyopia, was found to be the major element of the disturbance in ten. In this group there were nine girls and one boy. All appeared to be well nourished; four complained of headache, one of lacrimation, and two of photophobia. All of them could read fine print (J.2 or 3), but all of them balked at the smaller letters on the test chart. In none of this group were the refractive errors conspicuous, and the correction of such small errors as did exist failed to produce normal vision. The mental attitude was that of indifference and unconcern. Two of the children were sotto-voiced; one girl was said to talk continually in her sleep, and two exhibited that definite evidence of hysteria—monocular diplopia.

This slight degree of amblyopia in which the complaint is blurring of distant objects, with the visual tests showing 20/30 to 20/50, is, as a manifestation of hysteria, more common in children than in adults; and the other ocular stigmata also, I think, predominate in children. Those transient attacks of blurring which are complained of while reading, supposed failures of accommodation, are put down as hysterical by many observers; and into this same diagnostic dustpan Dr. Casey Wood⁴ sweeps children's complaints of photophobia, lacrimation, and the winking habit. Perpetual frowning and scowling may be mild forms of hysterical contractures. The cramp of the ciliary muscle which produces a false myopia probably comes in this same category. On the other hand, anesthesia of the conjunctiva and cornea, and the severe blepharospasm, mentioned by Burch⁵ as occurring in adults, are symptoms not as often seen in the border-line type of hysteria of late childhood. At this age, however, comes into prominence the arch-symptom, monocular diplopia or polyopia—an object doubled, tripled or even quadrupled with one eye closed; and excepting a few pathological rarities, this phenomenon, when it does

*Read before the St. Louis County Medical Society, Duluth, May 8, 1930.

occur, may be said to be pathognomonic of the neurosis. A girl of ten complained of blurring and the doubling of objects. With one eye closed she reported a yellow pencil as "two." A red pencil was now substituted and the diplopia disappeared, but back again to the yellow one, and the pencil was seen as two. These double images of hysteria play curious tricks, but usually they can be differentiated from the diplopias which result from true paralysis. When this interesting symptom is absent in children, the diagnosis of hysteria is largely a matter of assumption, based on the negative objective findings, combined with the type of the complaint and the mental attitude of the complainer. At least, this is true until one reaches the visual fields, and here the diagnosis may usually be stabilized.

For the purpose of mapping the field of vision, and especially for studying changes in the periphery, the perimeter remains the apparatus of choice. It will be recalled that in the four principal meridians the field extends about 55 degrees upward, 70 downward, 65 to the nasal, and 90 degrees or slightly more in the temporal direction. In hysteria, more or less contraction is found in the great majority of cases. A narrowing of even 5 or 10 degrees in the upward, downward and nasal direction, and 15 degrees in the temporal line should give rise to suspicion. If the contraction is a little more than this, and the eye-ground clear, brain disease reasonably excluded, and alcohol, nicotine, quinine and such poisons not in question, then hysteria is very likely at work. When the test object is reported at an equal distance around the fixation point, and can be seen only within the 40 or 50 degree circle, we have the classic, concentric contraction. Parker⁶ found this celebrated text-book symptom in nine out of fifty subjects whose hysterical manifestations varied from aphasia to vomiting; while thirty-two of his fifty cases showed slight, although definite, contraction which was not, however, of the concentric type.

A number of years ago, Bjerrum, a Dutch ophthalmologist, discarding the perimeter painted his consulting room door black, against which surface he studied the fields of his patients. Since that time the so-called tangent screen or campimeter has come more and more into general use. For particularly accurate work a black screen 1.5 or 2 meters square, with degree circles marked on the surface, is to be preferred; but

for preliminary and tentative studies a well cleaned blackboard, evenly and thoroughly illuminated, serves as a most convenient substitute.

The height of the average blackboard requires a working distance of 0.5 meter. To assist in holding the attention some small object such as a gold star or cross is placed opposite the one exposed eye, and around this fixation point may be drawn faintly dotted circles with radii of 6, 14, 25, 40 and 62.5 cm., which correspond respectively to 10, 20, 30, 40 and 50 degrees on the perimeter. Beyond the last mentioned distance, however, the field on the screen cannot be expressed in degrees without geometric computation.⁸ In the absence of these degree circles on the blackboard it will be noted that a 2 cm. white test object, held on the tip of a black pointer, will be detected in the four principal meridians, about 60 cm. upward, 70 to the nasal side, 80 downward and 110 cm., or slightly more, to the temporal side. If the object is not reported within 10 cm. of these distances, a slight contraction is present which may call for closer study or mapping on the perimeter. If the field is contracted to 50 degrees in all directions, as it is in many hysterical cases, then the blackboard is as satisfactory for the purpose of studying the case as any tangent screen. Accuracy requires fixation of the head, one eye comfortably closed, even distribution of light (5 to 7 foot-candles), fresh test objects; and a slight allowance made for myopia, long lashes, deeply set eyes, etc. In addition to these contractions of the visual field which occur in hysteria, there are other phenomena which the simple blackboard will disclose:

1. Normally the field is somewhat widened with the enlargement of the test object, and more especially if the subject is moved further back. In hysteria this does not occur to the same extent, if at all, and the field is then described as "tubular"—a condition necessarily of functional origin.

2. With the normal subject there is an area of uncertainty as the test object is moved back and forth over the edge of the field. In hysteria the patient is likely to be more prompt and positive in reporting the appearance and disappearance of the object, which may be seen as coming in "bit by bit," or "just half in sight," if a large test object, such as a piece of writing

paper, is used;⁷ thus, the field is sharply demarcated.

3. The "predilection for red," stressed as a characteristic of hysteria, shows itself frequently as a fully normal or slightly exaggerated field for that color, while the form or white field is considerably contracted. In this connection, girls, who are rarely color blind, may be found confusing various shades which under normal circumstances they would readily distinguish.

4. Foerster's displacement phenomenon depends on the fact that the appearance of an object within the field exerts a greater stimulation than its disappearance. If an object is moved from the extreme temporal side it may be perceived at 90 degrees, when moved across the center it may disappear at 35 degrees on the nasal side while it should be seen as far as 60 degrees. This is an occasional happening in hysteria.

5. Color field interlacing and reversals are too complicated and time-consuming for young subjects in whom this game of hysteria hunting may well be limited to five minutes at a sitting.

It is not only those who show eye symptoms who exhibit the fields of hysteria; these peculiarities are quite as likely to be present when the complaint is referred to some point as far from the orbit as the tip of the spine or the "pit of the stomach." As an experimental control I tested fifty uncomplaining and healthy appearing children of average intelligence, from eight to twelve years of age. Forty-four showed full, normal fields; four were slightly contracted—faulty attention and appreciation; one boy, generally inaccurate; one girl, probably unsuspected hysteria. For the purpose of comparison I then tested fifty of the same age period, all of whom had been passed as having no obvious physical defects, but who were given to complaining of headache, side-ache, fugitive pains in various localities, vertigo and so on. In this group of complainers, twenty-two showed more or less field contraction: ten moderate narrowing; twelve concentric contraction, and in other respects the fields were definitely of the hysterical type. Also, in the group of ten young amblyopes previously referred to, eight showed definitely contracted fields. The boy mentioned in the introduction of this paper had a narrow and tubular field on the right, on which side he did not

allege blindness, and the girl of the automobile accident had fields confined to the 20 degree circle.

Pierre Janet⁸ defined hysteria as "a form of mental depression characterized by retraction of the field of consciousness, and a tendency to dissociation, etc." This limitation of consciousness is comparable to the contraction of the visual field, which is, indeed, part and parcel of the general inhibitory process. The hysterical subject according to this view is incapable of taking into the field of consciousness all of the impressions which the normal individual is aware of; and it is this failure which can be so easily demonstrated, and to some extent measured, on the ordinary blackboard. Charcot¹⁰ first stressed the frequency of cutaneous anesthesia in hysteria, although the neurologists now say that this is not as frequent an occurrence as the French master originally insisted. These visual field contractions, with their concentric form and abrupt edges, are again comparable to the curious anesthetic areas of geometric pattern and sharp outline found on the surface of the body. In medieval days, and even on into the eighteenth century, adepts in the art of locating these spots with lost sensation were professionally employed in testing the epidermis and mucous membranes of those suspected of being satanically possessed. Could the "tester" outline the claw of the Devil, or any anesthetic area resembling it, it was all up with the unfortunate suspect. Well was it for the witches that the tangent screen was not in use in those days.

The matter under discussion has been limited to preadolescents because they have been available for group study; partly, too, since they are less subject to the border-line neuroses, and partly since behind their complaints there is less likelihood of organic disturbance. Moreover, the mind of a child, from seven to fourteen, corresponds to the period of psychological development of ancient and medieval people, among whom, from all accounts, hysteria was highly prevalent. Also does this affection turn more to the eyes than formerly, with the increasing number of ophthalmologists, the glittering advertisements of optometrists, and the increase of schoolbooks, school nurses and test charts. Hysteria, too, changes its fashions: there are now fewer witches and fewer bewitched; the phantom

tumor is not as frequent as it was thirty years ago; the nail of Sydenham¹⁵ has been replaced by tenderness in McBurney's point; globus hystericus is somewhat replaced by those undetectable foreign bodies in the throat, the search for which so wearies the laryngologist. From fourteen to nineteen may have been the preëminent half decade for hysterical exhibitions in the reign of Queen Victoria when girls of that age were more tightly dressed and more socially suppressed than at present, and had less opportunity to let loose their emotions. Even somnambulism is less heard of since young ladies have taken to pajamas. The age of hysterical preference may have moved down from sophisticated sixteen to the more simple minded year of eleven. Today, also, not only are the eyes more frequently involved than formerly, but the Devil's claw has recently reached into the paranasal sinuses. A few days ago a child appeared saying she had "sinus trouble"; no careful study of the nose had been made, and no *x-ray* pictures taken, but she did exhibit a sharply contracted visual field.

CASE REPORTS

Case 1.—Hilma K., aged 9, Finnish. Complaint: Indistinctness of the writing on the blackboard, and the fading away of the features of her teacher (the child had been recently separated from her parents and farmed out). Appearance: Healthy, well nourished. Demeanor: Passive. Vision each eye 20/40. Reads fine print (J.2) without difficulty. The fields are concentrically contracted, of tubular type, and the test object is reported with alacrity as it passes over the edge—and this in contrast to the rather slow responses which are given to other tests. One month later refraction under atropin showed hyperopia 1 diopter, and a trace of astigmatism. Vision not improved with any correction.

Case 2.—Viola B., eight and a half years old, Italian. Complaint: Blurring of objects in the school room; lacrimation, photophobia. Vision 20/40. Fields limited to 40 degrees in all meridians. Refraction under atropin: Hyperopia, as in Case 1, with a half diopter of astigmatism. No improvement of vision with any correction.

The glasses with which these children were provided were soon discarded when some weeks later the vision became normal and their eye troubles had been forgotten.

Hyperopia of one diopter and a small degree of astigmatism occurs in 50 to 60 per cent of the children of this age.¹² Whatever change takes place in the refractive error is slow and is not materially influenced by the wearing of glasses.

A group of sixty children were observed who had had such weak plus corrections ordered. Forty-eight of these children were persistently forgetting to wear their glasses. "Eye strain" in childhood is a bogey to be regarded with some suspicion. "Asthenopia, meaning weakness of vision, is a functional condition more common in early adult life than in children." (Kerr.) "The retina does not get tired and refuse to function; variations in response are due to variations in central rather than retinal function, and the terms retinal fatigue and retinal asthenopia have probably a much more restricted significance than is usually attributed to them." (Traquair.)

Case 3.—Louise F., aged 12, had had a bad cold in February. In the month of April, after a quiet interval of six weeks, she begins to cough daily about 2:00 p. m. and keeps it up until school is out. The cough is non-productive; pulse and temperature normal; chest, nose and throat negative; but the visual fields are typical of hysteria.

Case 4.—Mary D., aged 11. The complaint is that of recurrent pain in the right side. Physical examination has given negative results; fatigue, diet and posture have been considered. The only positive finding is a visual field limited to 40 degrees, and tubular in type.

Case 5.—Ellen S., aged 11. Healthy in appearance, slightly underweight, she has few complaints. The pulse rate while standing was found to be 120, and after 10 minutes in the recumbent position 106. Temperature normal; recent history and physical examination negative. No coffee; no evidence of mental excitement. The visual fields were similar to those mentioned above. The pulse rate five days later was 104 while resting, and the fields were still contracted: hysterical tachycardia (?).

Case 6.—Alice H., aged 13. Slightly anemic; growing rapidly; mild fatigue symptoms. Pulse 105 while resting; distinct tremor of the extended fingers and a fibrillary tremor of the tongue. There is a suggestion of an exophthalmos and an enlarged thyroid of the type and size found in 20 per cent of the girls in this locality. The central vision is normal, but the fields contracted, tubular, and very sharply defined. This girl reported to be very nervous, appears to be taciturn and unconcerned. Six months later the tremor had quieted down, the pulse slowed, and the visual fields were back to normal.

Case 7.—Ellen F., aged 14. Referred for examination of the eyes because of difficulty with reading and "terrible headaches." There was no manifest refractive error; muscle balance, accommodation and vision were apparently normal. The headaches, the location and periodicity of which she was very vague about, dated from an appendicitis operation fourteen months before. She also stated that her doctor had given her pills which had caused the trouble with her eyes. The fields were typical of hysteria.

This same story of an appendicitis operation

followed by persistent headaches I have heard from two other girls who showed hysterical fields, and in whom there was no pronounced refractive error, and little else to account for the complaint.

Case 8.—Margaret S., aged 18. This girl had been admitted to the hospital with a diagnosis of appendicitis made by one physician, and of pelvic abscess by another. I was asked casually by the surgeon-in-charge to see this patient who alleged great tenderness in the lower right abdomen and exhibited rigidity of the abdominal wall. The temperature and pulse were normal. A day or two later on with an improvised screen, the visual fields were found moderately contracted—about 20 degrees. The complaint of abdominal tenderness, however, being persisted in, an exploratory operation was performed: appendix normal; no abscess found; recovery rapid.

Case 9.—John H., aged 13. Long legged and slow brained; in an opportunity class with children several years his junior. The boy was eager to get away from school and work on a freight boat. There had been some complaint of poor sight, but the vision reached 20/20 after coaxing; the fields, however, were those of hysteria, and that he was reporting with a fair degree of accuracy was evidenced by the rapidity with which he located and outlined the blind spot; a proof of concentration and observation which is entitled to a position among the mental tests, but not yet included in the text-books.

Case 10.—E. H. A highly intelligent boy of 20; an only child, constantly attended by one or both parents. He has stammered, moderately and intermittently, since early boyhood, and has been much examined with negative results. Recently a pronounced tremor of the fingers has developed, and the handwriting begins to show irregularity; there is a scanning type of speech. The visual field shows a slight shortage in the upper nasal quadrants, and extends only to 75, in place of the normal 90 degrees, in the temporal line. This supports the suggestion of disseminated sclerosis, but fortunately may belong to the more common affection.

The pathology of hysterical amblyopia has its seat neither in the eye or the visual pathway to the occipital lobes nor in those receiving stations, but, it is suggested, in the fibres which run from thence to the higher intellectual centers where "the synapses at one or more of the cell stations in the path to the cerebral cortex must become unswitched, probably as the result of the retraction of the dendrons";¹¹ thus, the going wrong of a localized process which is somewhat akin to the widespread cerebral working which results in natural sleep. The result is a failure in the function of response to that which is properly registered in the brain; a fault, if you will, in the starter! On another occasion in the same type of brain certain inhibitory fibers fail—the brakes won't work—sobbing, laughing, hic-

coughing, naturally excited, unnaturally persist, and we are confronted not with blindness, deafness and such, but with "hysterics."

As a diagnosis "hysteria" is unpopular, both from the standpoint of patient and physician; to the one the word implies a weak mind and a suspicion of prevarication; to the other it is an indefinite affection, and one as yet not clearly defined. For the oculist the word hysteropia, an invention of Dr. Casey Wood, is a convenient refuge. Hysteria, however, must be admitted to be a clinical entity, although one which, unless we possess the superknowledge of the psycho-neurologists, we are prone to confuse with the other neuroses and psychoses which Freud and others have so striven to teach us to separate and distinguish. It is neither imagination gone rioting nor malingering. It is not merely the result of suggestion, although those afflicted with hysteria are most easily led by that process. The idea of a defense reaction continually suggests itself; children are most frequently affected in school-time; adults thus react to "an intolerable situation." Our most remote ancestors probably utilized the trick (now referred to as a neurosis) to save themselves from assaults of their enemies, as do molested spiders and the proverbial opossum. All of this relates to but does not define hysteria, which Mobius, Janet, Babinski, Freud¹⁴ and forty others have attempted with more or less disagreement. Plato¹⁵ himself planted the misnomer in a poetical definition; and this idea about the uterus lasted from 400 B. C. until about 1750 A. D. when the disease was discovered in the male of the species by one Raulin,⁹ a Frenchman, who may have gotten his idea of masculine participation from Sydenham¹⁵ who was, indeed, antedated in this by Shakespeare.¹⁶ All medical Europe was racked for a while over this heresy to a long cherished belief, which may come again into its own when we find that hysteria is due to the curdling of the ovarian hormone, or the accidental precipitation of its analogue in the male.

The question here is not just what hysteria is, nor by what method the affliction is to be relieved, for those are the problems of psycho-neurology; but how shall it be told, and to what extent does it mix in and complicate the already somewhat discredited science of symptomatology? It is common in those of childish mind from eight to forty-eight and on; its minor

exhibitions are especially frequent in preadolescence. If in one of these young subjects one eye alone sees double, or the visual field is concentrically, or otherwise contracted, it is a four to one venture that the patient in her (or his) complaint is mimicking, magnifying or prevaricating, and the last—without any reflection on the moral aspect—to such an extent that the substitution of the name prevaricosis multiforme might not be out of place.

REFERENCES

1. Kerr, James: The fundamentals of school health. Macmillan Co., New York and London, 1927. (The most complete work on the subject by the premier school-physician of Great Britain.)
2. Wilson, J.: Brit. Med. Jour., June 3, 1922, p. 875.
3. Katz, C.: Klin. Monatsbl. f. Augenh., July, 1910.
4. Wood, Casey A.: Encycl. of Ophthalmol., 8:6123 (Editorial).
5. Burch, Frank E.: Am. Jour. Ophth., 8:699, 1925.
6. Parker, W. R.: Trans. Am. Med. Assn., Section Ophthalmol., 1910.
7. Traquair, H. M.: An introduction to clinical perimetry. Mosby Co., St. Louis, 1927. Page 45, 222.
8. Peters, L. C.: The principles and practice of perimetry. Lea & Febiger, Philadelphia, 1925.
9. Janet, Pierre: The major symptoms of hysteria. Macmillan Co., 1913.
10. Charcot, J. M.: Leçons sur les maladies du système nerveuse. 1877.
11. Hurst and Peters: Lancet, 2:517, 1917, and C. J. Herrick: Introduction to Neurology.
12. U. S. Public Health Bulletin No. 182. Refractive errors in eighteen thousand children examined under a cycloplegic.
13. Plato: (*Timaeus*) The matrix is an animal which longs to generate children. When it remains barren, for a long time after puberty, it finds it difficult to bear, it feels wrath, it goes about the whole body, closing the tissues for the air, stopping the respiration, putting the body into extreme dangers, and occasioning various diseases, until desire and love bring man and woman together to make a fruit, and gather it as from a tree. (Janet.) 375 B. C.
14. Freud, S.: A psychoneurosis resulting from the conflict between the libido and sexual repression, characterized by passivity, and its ability to convert the psychic into the physical. (Standard Practical Dictionary.) 1928 A. D.
15. Sydenham, Thos.: *Hysteria. Dissertatio Epistolaris.* 1682 A. D.
16. Shakespeare, Wm.: King Lear:
Oh, how this mother swells up toward my head,
Hysterica passio, down, thou climbing sorrow * * *
Act II, Scene IV. 1605 A. D.

VALVULAR HEART DISEASE IN YOUNG ADULTS*

C. A. MCKINLAY, M.D.
Minneapolis

THE observations noted in this paper are from 67 cases, chiefly University students, who were given entrance and subsequent physical examinations which revealed valvular heart defects. These examinations were done routinely or on account of the presence of cardiac murmurs, tachycardia, palpitation or anxiety regarding suspected heart trouble. The cases then were selected, from a large group ranging as to age from 15 to 35 years with an average of 20 years, and as to sex, 47 males and 20 females, from a student body in which males predominate approximately 2 to 1. It is a selected group also in that they were individuals without cardiac decompensation; as a rule they had suffered little or no inconvenience from their condition and they may, therefore, be considered in the heyday of life as far as cardiovascular efficiency is concerned. Only 17, or about one-fourth of the group, had noted dyspnea.

An attempt has been made to use critical judgment in the diagnosis of the type of lesion. The clinical picture presented by the group with aortic insufficiency has been as clear as any known. A diastolic murmur beginning early and heard best at the left sternal border, associated with water-hammer pulse, has been considered pathognomonic of aortic insufficiency. Often capillary pulse and Duroziez sign were demonstrable. Similar peripheral vascular signs with increased pulse pressure present in hyperactive hearts, notably in hyperthyroidism, were of course not considered significant. On the other hand, hardly any single pathognomonic sign of mitral involvement in the absence of demonstrable pulmonary congestion was known, although, in mitral stenosis, diastolic murmur at or near the apex has been emphasized and, with bulging in the area of the pulmonary conus, has been considered pathognomonic. A check of clinical diagnosis with necropsy findings has shown, ac-

cording to Cabot (1), that mitral stenosis of all valvular lesions has been most frequently overlooked; that in a series there were 107 solitary lesions of the mitral valve compared to 28 of the aortic, and that 25 of the 28 were in men. Dr. E. T. Bell² states that in a series of about 460 necropsies which revealed valvular defects of rheumatic origin over 50 per cent had involvement of the aortic valve, usually combined, and that solitary lesions of the mitral valve were about three times as common as defects of the aortic valve. Such usual pathological findings would indicate that, in the group reported clinically recognized as having solitary aortic lesions, the mitral involvement may have been occasionally unrecognized.

Paul D. White,³ in Cecil's textbook, classifies the types of valvular lesions as follows: 100 mitral, 50 aortic, 25 tricuspid, and pulmonic one or less. Willius⁴ found, in a series of 170 cases, 78 per cent of mitral, 13 per cent of aortic, and 15 per cent combined. In a recent report, B. A. Schwartz⁵ in 55 cases of valvular disease, 40 under 11 years of age, found 51 of mitral involvement, 3 aortic, and one combined. The impression gained from this last observation is not supported in the series here reported, where there is a relatively higher percentage of aortic involvement. It is thought that an inadequate impression of the incidence of involvement of the aortic valve in rheumatic infection has prevailed, fostered in part by certain texts which have not recorded series of cases.

In the 67 cases reported, 22, or approximately one-third, were classified as mitral stenosis and insufficiency, 18 as mitral insufficiency, 20 as aortic insufficiency, 2 aortic stenosis, 4 aortic insufficiency combined with mitral stenosis and insufficiency, 1 aortic insufficiency and stenosis combined with mitral insufficiency; 27 cases, or 40 per cent, had aortic involvement alone or combined. In aortic cases, solitary and combined, males predominated 22 to 5, while in mitral they predominated only 25 to 15.

*From the Students' Health Service, University of Minnesota. Presented before the Minnesota Society of Internal Medicine, Duluth, Minnesota, May 26, 1930.

Outline of the heart upon six-foot plates and by orthodiagram more recently was obtained in 33 cases and bulging in the region of the pulmonary conus aided in establishing the diagnoses in 10 of 17 mitral cases, and increase in the left ventricle in 7 of 13 aortic cases. The others did not show change considered to be above possible normal limits. In the group studied, inability to demonstrate in certain cases change of cardiac outline by *x-ray* calls attention, first, to the fact that with perfect compensation there may be very minimal change actually present; and, second, to detect minimal changes the *x-ray* interpretation of cardiac outline should be made in view of the individual's height and weight and that more frequent examination of the retrocardiac space by esophagram be made.

The detection of cases largely silent as to usual cardiac symptoms is illustrated by K. R., aged 20, engaged in active athletics, wrestling, who appeared for examination on account of moderate sleeplessness. Physical examination revealed aortic insufficiency without preceding infections except occasional sore throats and without recognized change in cardiac outline on the six-foot plate. He was advised to guard against cardiac overload and to have tonsil tags removed. Four years later a fatal illness supervened and necropsy showed subacute bacterial endocarditis and the old fused aortic valve defect. Another case in the series with aortic defect is known to have succumbed to subacute bacterial endocarditis.

Seventy-one per cent gave a history of rheumatic fever or chorea 1 to 15 years previous to observation, with an average of 7.4 years, which would make the average initial attack at 12.5 years of age. The incidence was essentially identical in individuals with mitral involvement and in those with aortic alone or combined. Approximately one-third, or 31 per cent, of those with rheumatic fever had recurrent attacks. Lues was not found in any case. Electrocardiographic study was not available in a majority of instances.

As a control, a record was made from 100 histories in normal males of similar age regarding the incidence of rheumatic fever and tonsillar infection and removal. Two gave a history of rheumatic fever; 27 gave a history of tonsilitis; 36 had normal appearing tonsils; 42 had had

tonsillectomy; and 22 had infected appearing tonsils.

Approximately one-half, or 36, gave a history of frequent sore throats, tonsillitis or quinsy. Nine out of 19 cases without rheumatic fever gave a history of attacks of tonsillitis and only 2 without a history of rheumatic fever or tonsillitis had scarlet fever alone. There were 17 instances of both scarlet fever and rheumatic fever or tonsillitis. Scarlet fever alone did not appear to be an important precursor.

While there was the usual expected frequency of history of rheumatic fever, an appreciable number (15 per cent) have remembered no significant throat infection or joint or muscle pains in childhood. Thirty-five, or slightly over half of the group, had had tonsils removed with a clean result; 15 had tags remaining, and 14 had not had tonsillectomy. Several had had tonsillectomy two or more times. The possible malevolence of tonsil tags in this relationship is illustrated by G. F., male, age 21, college athlete, who gave a history of tonsillectomy in childhood. In December, 1929, he developed tonsillitis, followed two weeks later by rheumatic fever with subsequent development of signs of mitral insufficiency which were not present at the time of previous examination. Delayed complete tonsillectomy was done and the door was locked after the horse was stolen. Not infrequently tonsillitis in small tags has been noted with marked systemic reaction.

Although it is realized, as stated by Swift,⁶ that available statistics do not show any great advantage in tonsillectomy from either a prophylactic or curative standpoint with regard to rheumatic fever, figures at present are too meager for final judgment. Farnum,⁷ in a report concerning the effect of tonsillectomy upon existing cardiac disease in 526 adults, chiefly with valvular defects, concludes that if tonsillectomy is to be used in the future as a definitely therapeutic measure its best results will be obtained before the incidence of heart infection or very early in its course; and that the removal of tonsils certainly will not guarantee a halt in the progress of existing cardiac disease, because the cause of such infection may still be present in the throat or elsewhere in the body.

Gordon⁸ expresses a common attitude that the tonsils may be considered guilty until proved in-

nocent; that rheumatic fever may develop after satisfactory enucleation, but that such attacks are milder and cardiac damage less pronounced. A continued minimal fever after acute tonsillitis without rheumatic fever, as occasionally seen, cannot help but impress the clinician with its significance as a cause of carditis when associated with signs of valvulitis. Illustrative is M. B., female, aged 21, who had acute follicular tonsillitis with marked systemic reaction and with minimal fever and tachycardia continuing for about eight weeks without tuberculosis or other demonstrable infection. Carditis may have occurred and, although positive proof was lacking, the development of systolic murmur and tachycardia was suggestive. In this series no history of the first attack of rheumatic fever occurring after clean tonsillectomy was obtained. Even if allergic phenomena, as emphasized by Swift, are of importance, nodes of primary infection will always challenge interest.

Again, thinking in terms of sore throat and rheumatic infection, even in those who have had all their tonsillar tissue removed there has occurred not rarely a so-called follicular pharyngitis in which patchy exudate, edema and injection involve the lymphoid tissue of the pharynx instead of the lymphoid tissue known as the tonsil, with as severe systemic reaction as in tonsillitis. In the student group, the frequency is striking with which this type of pharyngitis has occurred with marked systemic reaction in individuals either with or without tonsils. The local and general reactions are similar to tonsillitis and there is no good reason to postulate any other type of bacteria as causative. Granted that the lymphoid tissue of the pharynx does not present the opportunity for chronic infection and formation of pus pockets as do the tonsils, situated in their restricting fossa, it is nevertheless the frequent seat of an apparently primary acute infection which may be significant as regards rheumatic fever and carditis, and persisting hypertrophy suggests chronic infection. Small⁹ believes that the organism of rheumatic fever prefers the superficial sites in the pharynx and describes, in that disease, a reddening of the anterior pharyngeal pillars extending upward toward the uvula, without ulceration or exudate, coinciding possibly with the rheumatic throat of the older clinicians. Nasal and dental infections are, of course, factors which participate in the

infection and hypertrophy of the lymphoid tissue of the throat and must be considered in treatment. In addition, other less obvious portals such as the gastrointestinal tract have been suggested. The not infrequent occurrence of subacute bacterial endocarditis, possibly due to the same organism as rheumatic fever, should emphasize the importance of reducing predisposing tonsillar, oral or nasal infection. If it is avoided, the other horn of the dilemma, decompensation, may possibly be indefinitely delayed, granted that physical overload can be consistently reduced or that the lesion is minimal. The management of the group as above illustrated, resolved itself, in the main, into reduction of physical overload, the avoidance of dyspnea and also invalidism, and the promotion of physical fitness as contributing to increased resistance to infections.

While recognizing that the problem of rheumatic fever has its roots deep in fields that include epidemiology, immunology, and bacteriology, from the clinical standpoint insufficient emphasis has been placed upon the importance of complete tonsillectomy, also upon the importance of pharyngitis and the methods of ridding the body of such infection. Williams¹⁰ and others have advocated the use of radium in the treatment not only of pharyngitis but also of tonsillitis, acute or chronic.

In an attempt to determine whether and how often acute follicular tonsillitis is accompanied by bacteremia, Dr. B. J. Clawson has consented to examine the blood cultures taken during the active state of acute follicular tonsillitis. So far no positive cultures have been obtained.

SUMMARY

1. The good functional capacity of most individuals in the series was noted.
2. The relatively high incidence of aortic insufficiency was noted in a series of cases. This corresponds well with actual pathological findings referred to.
3. Clean tonsillectomy had been done in only about one-half of the cases.
4. The frequency of hypertrophic and follicular pharyngitis is discussed in view of pos-

sible significance in relation to rheumatic fever, the methods of treatment, and prevention.

BIBLIOGRAPHY

1. Cabot, R. C.: Facts on the heart. Saunders Co., p. 77, 1926.
2. Bell, E. T.: Personal Communication.
3. White, Paul D.: Text Book of Medicine. Saunders Co., p. 1034, 1927.
4. Willius, F. A.: Quoted by Schwartz.
5. Schwartz, B. A.: Jour. Am. Med. Assn., 94:853, 854.
6. Swift, H. F.: Cecils Text Book of Medicine. Saunders Co., p. 89.
7. Farnum, W. B.: The effect of tonsillectomy on the existing cardiac disease in adults. Am. Jour. Med. Sci., 1928.
8. Gordon, A. H.: An address on rheumatic fever. Can. Assn. Med. Jour., 17:1132 (Oct.), 1927.
9. Riesman, D., and Small, J. C.: Rheumatic fever: clinical manifestations, etiology and treatment. Tr. Assn. Am. Phys., 43:179, 1928.
10. Williams, F. H.: Note on radium treatment of lymphoid tissue in tonsils and pharynx. Tr. Assn. Am. Phys., 43:234, 1928.

THERAPY WITH OVARIAN PREPARATIONS

The Council on Pharmacy and Chemistry sponsors the following statement on therapy with ovarian preparations in the current (1930) edition of New and Non-official Remedies: "Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely striking, and often nil to the careful observer. It is altogether probable that the activity which may be presented by the fresh gland is not contained in a finished desiccated product, or else, when given by mouth, it is destroyed by the digestive juices; extensive clinical experience has failed to establish the value of desiccated preparations administered orally. There is considerable evidence that the aqueous extracts prepared for hypodermic use are inert . . . much work has been done toward the elaboration of a potent, standardized preparation of the ovary, and as a result of these investigations such potent standardized preparations for use by subcutaneous injection have become available. These preparations have been shown to induce estrus in mature animals and to induce sexual maturity in immature animals. Somewhat limited clinical evidence indicates their probable value in ovarian hypofunction." The Council has omitted all desiccated ovary preparations for oral administration on the ground that there is no adequate evidence for their value and, so far, has not accepted any ovarian hormone preparation, because the evidence for the value of these was considered inadequate. (Jour. A. M. A., July 5, 1930, p. 64.)

JOHN R. BRINKLEY, QUACK

John R. Brinkley of Milford, Kansas, has for years been quacking it, but having his own so-called hospital, it has been possible for him to keep his own records, so that only by accident do the results of his work become public. The newspaper publicity that has recently been given to Brinkley is beginning to bring to light some of the crudities of his work. Brinkley's "specialty" is the alleged sexual rejuvenation of the male by the (also alleged) implantation of goats' testicles into the human scrotum. Naturally, the deluded individuals who go in for this particular line of medical humbug are not going to complain after they have found that they have been swindled. If Brinkley had been shrewder, he would have confined his quackery to this particular field. More recently, however, he has been going into the treatment (still alleged) of prostate trouble and, naturally, men do not have the same hesitancy about discussing operations for the relief of pathologic conditions of the prostate that they do in talking about sexual rejuvenation. The Kansas City Star, which has been giving its readers a great deal of information about Brinkley's methods, has now published some interesting material from Brinkley victims who throw light on the way in which he uses his radio station to get in touch with persons and how he treats them at his hospital. (Jour. A. M. A., April 26, 1930, p. 1339.)

THE CLINICAL ASPECTS OF SCLEROTIC CHANGES IN THE AORTIC VALVE*

CARL B. DRAKE, M.D.
Saint Paul

SCLEROTIC changes in the aortic valve consist of connective tissue thickening and commonly of calcification of the valve leaflets. The calcification may be for the most part at the bases of the valves on one or both sides of the leaflets, may prevent complete opening during systole, or may accompany an adherence of the valve leaflets, producing an osseous-like rigidity of the valve. The outstanding result of the sclerosis is a stenosis of the valve, and often there is an accompanying insufficiency.

The pathologists have recently become much interested in this not infrequent autopsy finding. There is no agreement among them as to the etiology of the sclerosis, but there is a growing opinion among them that a senile sclerosis does not explain the picture. Microscopically, the picture is difficult to distinguish from terminal changes in this valve resulting from known previous rheumatic or endocarditic infection. Clawson has failed to find cholesterol in microscopic sections of these sclerosed valves, which is characteristic of senile sclerosis. There are good arguments for accepting either view as to the etiology of the sclerosis.

It is logical to conclude, when at autopsy there is other evidence in the heart of previous rheumatic disease, that the sclerosis is scar tissue healing of an old endocarditis. Clawson, who has collected a series of seventy-five cases of sclerotic aortic valves, tells me that he has found evidence of a fibrous or adhesive pericarditis in 14 per cent of his cases. There was evidence of a previous rheumatic mitral lesion in 29 per cent of these same cases. However, with this complication the age incidence of the patients was lower.

On the other hand, sclerosed aortic valves are most frequently found in elderly individuals, the male predominating. Often the aortic valve is the only valve showing abnormality. There is usually evidence of marked generalized arteriosclerosis, but it is not uncommon to find little or no atheroma of the aorta in these cases. In

many instances there is no history of a preceding rheumatic infection nor of previous symptoms suggesting an endocarditic infection. This lack of history does not, of course, rule out a previous infection of this sort for we know that such an infection can involve the endocardium and go undiagnosed due to lack of arthritic or other characteristic manifestations.

The recognition of these sclerotic changes in the aortic valves means the diagnosis of aortic stenosis and often stenosis with regurgitation. The predominant lesion is stenosis. In most cases the stenosis at autopsy is obvious. The determination at autopsy of the presence of an accompanying insufficiency of the valve in many cases may be largely a matter of individual judgment, but in some instances there is no room for doubt that the valve is also a leaky one. Until we have a method of testing the competency of a valve *in vivo* we cannot always feel sure of the presence or absence of a valve insufficiency. Aortic regurgitation alone on a purely sclerotic basis probably does not exist any more than an aortic stenosis alone on a luetic basis.

The diagnosis of aortic stenosis is often difficult. Cabot states that the direct evidence is rarely sufficient for a diagnosis. Where regurgitation accompanies the stenosis in these sclerosed aortic valves the regurgitation is even more difficult to detect, as the usual signs of aortic regurgitation may be almost entirely absent. However, with the evidence available, both direct and indirect, it does seem that we should be able to diagnose the presence of a sclerotic aortic valve more often than we do.

The following four patients were rather carefully studied, three of them on my service at the Ancker Hospital, and the fourth (case three) was examined by me, but was attended and correctly diagnosed by Dr. A. R. Hall, to whom I am indebted for the privilege of including this report. All four patients came to autopsy.

Case 1.—C. W., a male aged 66, and a laborer, was admitted to the Ancker Hospital April 10, 1927, complaining of dyspnea, anorexia, precordial pain, weakness and cough. His symptoms had begun three years

*Presented before the Minnesota Society of Internal Medicine, Duluth, May 26, 1930.

previous, and he had been confined to his bed eight weeks before admission. He had never had rheumatic fever.

On examination, orthopnea was present and slight cyanosis noted. A tortuous, sclerotic, pulsating vessel was palpable just median to the insertion of the right sterno-mastoid muscle. A broad, but not forceful, apical heart beat was palpable in the fifth interspace 13 cm. (by projection) to the left, and the right border was percussed 4 cm. out. No basal thrill was felt, and there was no increase in the mediastinal dullness. There was a faint systolic murmur heard at the apex transmitted to the left. The pulmonic second sound was accentuated. A harsh systolic murmur was heard over the entire precordium, loudest at the second interspace to the right, but not transmitted into the vessels of the neck. Râles were heard over the lung areas, and there was a hand's-breadth area of flatness at both lung bases posteriorly. The radial pulse was scarcely palpable, but there was a marked sclerosis and calcification of the radial and brachial arteries. The pulse rate ranged from sixty to seventy. The blood pressure was 128/82 and later 160/90. Marked generalized edema with casts and albumin in the urine developed before death June 8, 1927.

At autopsy, the heart measured 16 cm. in diameter, weighed 560 grams, and both ventricles were markedly dilated. The left ventricle was definitely hypertrophied. The mitral, tricuspid and pulmonary valves were normal. The aortic valves were markedly sclerosed and calcified, two of the leaflets being fused for 1.5 cm. along the borders. Irregular calcified nodules were present in both sides of the aortic valve leaflets, more marked in the aortic sides. The aorta was thin and somewhat dilated, and the intima showed no atheroma. The coronary arteries were calcified, but the lumina were not narrowed. The myocardium showed definite areas of scarring, for the most part in the left ventricle. Mural thrombi filled the left auricle and were present at the tip of the left ventricle.

The noteworthy points in this case were: (1) the undoubted existence of aortic stenosis without transmission of the murmurs into the neck, nor the presence of a thrill; (2) in spite of an aortic regurgitation undoubtedly present, blood pressure reading of 128/82 and 160/90; (3) a murmur at the apex transmitted to the left without organic disease of the mitral valve. Either a relative mitral insufficiency was present, or the aortic stenotic murmur was transmitted to the apex and to the left of the apex.

Case 2.—G. McT., a male aged 61, was admitted to the Ancker Hospital January 21, 1929, complaining of shortness of breath, swelling of the ankles, cough, nervousness, and loss of forty pounds in weight. Shortness of breath had begun two years before, and was noticed on walking fast. A slight cough for several years had become more troublesome the past six months. There was no definite history of acute rheumatic arthritis, although fifteen years previous he had

had pains in the knees relieved by extraction of teeth.

The patient had a dusky cyanosis. The heart apex was palpable in the fifth interspace 10.5 cm to the left. A systolic murmur was heard at the apex, transmitted to the left, and the pulmonic second sound was slightly accentuated. A different pitched, harsh, systolic murmur was heard over the first and second interspaces on the right, also at the second interspace on the left, and was transmitted into the vessels of the neck, more markedly on the left. The aortic second sound was reduplicated. No thrill nor diastolic murmur was noted. The radial vessels were tortuous and sclerosed, the pulse rather small, and of low tension. A general edema involving the pleural and peritoneal cavities, legs and thighs, and a large liver were present. The pulse ranged from seventy to ninety, but he had been taking digitalis for several weeks before admission. The blood pressure was 120/80. The urine was normal, and the blood Wassermann was negative.

The patient died February 2, 1929, of bronchopneumonia, and at autopsy the heart measured 16 cm. in diameter, and weighed 615 grams. There was a slight thickening of the free margins of the mitral leaflets, but a marked stenosis of the aortic valve due to fibrosis and calcification involving chiefly the ventricular surfaces of the valves. There was mild calcification of the coronaries and the heart muscle was pale.

The presence of a reduplicated second sound at the base in this case is against the presence of an accompanying aortic regurgitation and no mention of the probable existence of a regurgitation was made in the autopsy report. A different pitched apical murmur is not conclusive proof of a mitral regurgitation having been present.

Case 3.—Miss E. E. aged 80, was examined before her admission to the Miller Hospital under the care of Dr. A. R. Hall, on December 12, 1927. Her complaint was general weakness, pallor, and shortness of breath. She had been fairly well until about two months previous, when marked shortness of breath on exertion was noticed, which had been progressive. Swelling of the abdomen had also occurred. She had never had rheumatic fever.

On examination, the patient was markedly dysneic on lying in bed. A marked anemia was present, and a slight cyanosis. The pulse rate on admission was 68, but later ran as high as 120. The heart was enlarged to the anterior axillary line, and there was a diffuse cardiac impulse. No thrill was palpable. A rough systolic murmur was heard over the entire precordium. Moist râles were heard in the chest. The abdomen was distended, but there was no evidence of fluid. There was a slight edema of the ankles.

The blood pressure was 130/82; R. B. C. 2,160,000; hemoglobin 46 per cent. X-ray showed a left-sided enlargement with the mitral configuration and no widening of the aortic arch. The electrocardiogram showed a left ventricular preponderance.

Death occurred January 9, 1928. At autopsy the

heart was extended to the left costal margin and weighed 360 grams. The muscle was pale and flabby. The coronaries were patent. The heart valves were normal except the aortic, which was thickened, very rigid, and admitted just the tip of a finger. The valvular thickening was more marked at the base and on the inner surfaces, producing a marked irregularity. The edges of the valves were thin, and contained no calcium deposits. The root of the aorta contained numerous atheromatous patches and some deposits of calcium salts.

The accompanying anemia in this case doubtless accounted for some of the symptoms, and a very definite myocardial weakness. Although the heart was very large, it weighed only 360 grams. The murmur at the apex was apparently the same as that heard at the base.

Case 4.—J. M. L., male, aged 69, was admitted to the Ancker Hospital April 15, 1930, complaining of shortness of breath and a choking sensation of two weeks duration, a general weakness, and a swelling of the feet. His history of shortness of breath on exertion went back at least to the fall of 1928, when he was in the hospital with the same complaint. At that time he was diagnosed hypertension, with the highest blood pressure reading of 124/105, and also had an auricular fibrillation. He had been a laborer all his life, and had not had rheumatism.

The patient was poorly nourished, orthopneic, and somewhat cyanotic. There was a diffuse, heaving, cardiac impulse, and the heart apex was palpable in the sixth interspace 12.5 cm. to the left (projection) and the right border was percussed 5.5 cm. from the midline. The cardiac rhythm was typical of auricular fibrillation. A blowing, systolic murmur was heard at the apex and transmitted to the axilla, and no second sound was heard. The pulmonic second sound was accentuated at one time. A faint, medium pitched, rasping, systolic murmur was heard over the second interspace both on the left and on the right, and was transmitted to both subclavians and common carotids. No thrill was felt and no diastolic murmur heard. The radial and brachial arteries were tortuous and sclerosed. There was a two-finger dullness at the right lung base, and numerous râles were heard at the left lung base.

The electrocardiogram showed an auricular fibrillation, and a low tension in the Q. R. S. complex (rate 150). The Wassermann was negative. The x-ray showed the heart measuring 17.5 cm. in diameter with a left ventricular type of enlargement and evidence of fluid at the right lung base. Blood pressure was 140/100.

Diagnosis: Aortic stenosis (calcification); auricular fibrillation with cardiac decompensation.

The patient improved considerably, but rapidly failed before his sudden demise on May 8, 1930.

At autopsy, the heart weighed 468 grams. The pulmonary tricuspid and mitral leaflets were normal in appearance. There was a definite thickening of the aortic cusps, with calcification most marked near the

attachments of the leaflets. The aortic side of all the leaflets showed definite, raised, calcified nodules. A definite stenosis was thought to be present and also a certain degree of insufficiency. The coronary arteries were moderately sclerosed but there was no evidence of occlusion. The myocardium was brownish in color, and there were numerous fine scars present throughout the left ventricle. The root of the aorta showed some calcification but the rest of the aorta was smooth.

The points worth noting in this case were: (1) the absence of the second sound at apex and second interspace on the right suggesting an aortic regurgitation; (2) the faint systolic basal murmur due undoubtedly to the weak left ventricular action.

SUMMARY

1. The four cases reported were all in elderly individuals none of whom had a rheumatic history nor, if we except a slight thickening of the mitral valve in Case 2, a demonstrable lesion in any but the aortic valve.

2. In all four cases, stenosis of the aortic valve was the predominating lesion. A striking feature was the absence of a systolic thrill in any of the cases reported. This was probably due to an insufficient velocity of the blood stream as a result of a weak myocardium.

3. Although the aortic valve was doubtless insufficient in some of the cases reported, no diastolic murmur was heard in any of the cases. This was doubtless due to the accompanying stenosis which prevented an elevation of the systolic blood pressure and thus the pressure and velocity of the return blood flow through the aortic valve was insufficient to produce a murmur.

4. The pulse pressure in all four cases was within normal limits in spite of regurgitation undoubtedly being present in at least some of these cases. The only explanation of this phenomenon is that the greater the stenosis, the less the regurgitation possible, and the regurgitation is not sufficient to noticeably affect the pulse pressure.

5. Systolic murmurs heard over the mitral region and transmitted to the axilla were not due to demonstrable lesions in the mitral valve. While they may have been caused by a relative mitral insufficiency, they were probably the transmission of the murmur produced by the stenosed aortic valve.

6. Atheroma of the aorta was not an outstanding feature in these cases although there was evidence of marked arteriosclerosis elsewhere in every case reported.

CONCLUSIONS

1. Sclerotic changes in the aortic valve are relatively common in elderly individuals, especially in men.

2. Aortic stenosis is the predominating lesion produced by the sclerosis, but in many instances there is also an accompanying aortic insufficiency. The presence of the stenosis obscures the findings usually diagnostic of aortic regurgitation such as diastolic murmur, increased pulse pressure, and Corrigan pulse.

3. A systolic thrill is frequently absent in these cases, probably due to a lessened velocity of the blood stream passing through the aortic valve as a result of a myocardial weakness.

4. The etiology of the sclerotic process is so

far undetermined. Rheumatic involvement of the aortic valve alone is supposedly unusual. No explanation can be given why a senile sclerosis should pick out the aortic valves.

5. The diagnosis should be possible with the finding of a harsh systolic murmur of maximum intensity at the second interspace to the right, transmitted into the vessels of the neck, left ventricular hypertrophy, marked arteriosclerosis in the peripheral arteries, and a small, slow pulse. If there is a marked left ventricular dilatation as well as hypertrophy, a faint or absent second sound, the probable coexistence of aortic regurgitation may be assumed even in the absence of a diastolic murmur or an increased pulse pressure.

6. The sclerotic process producing aortic stenosis does not particularly shorten life, is a gradually progressive affair, and the patient usually adapts himself to a definite limitation in the field of his cardiac response.

A BAKER INSTITUTE "DIAGNOSIS."

The history of every quack concern that professes to cure cancer is monotonously alike. The scheme consists in diagnosing every simple skin lesion, no matter how benign, as cancer. Caustics are then applied and a hole eaten in the tissues with inevitable disfigurement and the patient finally sent back home "cured." Of course occasionally the quacks get real cases of malignant disease. Most of these are sent back home in time to avoid the necessity of the "institute" having to sign the death certificate. A recent case is of interest in that the victim showed more intelligence than is frequently displayed and thus saved himself considerable suffering an disfigurement. Mr. I., an Iowa farmer, developed a lesion on the chin that worried

him. He went to Muscatine to the Baker Institute where he was "examined." Mr. I. reports that he was told that he had cancer of the chin and would have to pay two hundred and fifty dollars and also sixty dollars a week hospital charges for four to six weeks. The Baker Institute, according to the victim, applied their cancer remedy. Then the young man got to thinking and decided that the Iowa State University was not far away and that they probably knew as much about cancer as Mr. Baker and his "institute." He went to the College of Medicine of the state University of Iowa where the dermatologic department diagnosed the lesion as *Tinea barbae*. Treatment for ringworm of the beard was instituted and in less than two weeks the young man went home. (Jour. A. M. A., July 26, 1930, p. 285.)

STATUS OF TINTED LENSES*

LEO W. FINK, M.D.
Minneapolis

IT IS a fact apparent to all who give sufficient consideration to the subject that tinted lenses are being prescribed by many ophthalmologists in an aimless and indiscriminate manner. That one should have a definite therapeutic object in view when he places a tinted lens before the eye needs no affirmation. Too many refractionists, priding themselves upon the finest detail in attaining scientific accuracy in correcting refractive errors, end their careful work by placing a tint in the lens, giving no consideration to whether it is a therapeutic necessity, but only hoping that it may help. This thoughtless method of prescribing reflects the influence which is exerted by optical firms, who by extensive advertising campaigns lead astray the unwary refractionist inclined to follow routine procedure instead of treating each case as an individual and applying therapeutic measures as they are indicated.

As a result of this routine method of prescribing there are at present a large number of individuals with healthy eyes wearing glasses with a tint which is not only unnecessary for protection but which is actually harmful to retinal adaptation. The healthy eye used with proper hygienic consideration and under normal conditions, making exception, of course, to the extraordinary conditions existing in certain climes or occupations, needs no protection from either the visible or invisible rays.

A great deal has been written about the harmful effects produced by the ultraviolet end of the spectrum, and no doubt many a tint has been placed in a glass to obviate the harm caused by ultraviolet radiation. It is true that this radiation in sufficient concentration has a decided injurious effect upon certain structures of the eye, as has been amply proved by clinical observation and experiment, and even in the concentration present in the solar radiation a few isolated instances of injury have been reported, as in the case described by Syme¹ where a woman developed an erythematous rash and injection of her

eyes on a bright summer day (Duke Elder² explains this by a sensitizer in the blood); but for the vast majority, nature has provided abundant protection against the ultraviolet ray.

This protection is furnished by the cornea and lens. It has been shown by experiment that the cornea absorbs all rays below 2,900 a.u. and that the lens gives even greater protection by absorbing all rays under 3,500 a.u.

When we consider that the sunlight at lower atmospheres, due to the absorption in the higher atmospheres, contains very few rays under 3,500 a.u. and the lower limit is reached around 2,900 a.u., we realize how well the eye is protected against this particular radiation. According to Abbott,³ the percentage of waves between 3,050 and 2,910 a.u. at ordinary altitudes averages about 0.25 per cent of the total solar spectrum. Lawson⁴ says that in the laboratory the ultraviolet waves average about 200 a.u. It is therefore obvious that it is impossible for very much of the ultraviolet ray to reach the retina under ordinary circumstances.

In granting protection from the heat, or infrared radiation, nature has again been liberal. Injury to the superficial portion of the eye is prevented to a large extent by the moist surface. According to Fuchs,⁵ the water in the media absorbs so much of the heat radiation that little, if any, reaches the retina at all. Vogt⁶ states that about 25 per cent reaches the superficial portion of the vitreous but causes no harm unless very intense and of long duration. So far as the visible spectrum is concerned, it causes no ill effects unless it is very intense and produces dazzling. As Lawson observes,⁴ "The eye of all human races is self-adapted to endure without harm the sunlight of that part of the world in which they live."

The self-evident fact that colored lenses cut down the intensity or brightness of light of necessity raises the question whether this decrease of luminosity is harmful or beneficial. As pointed out by Ferree and Rand,⁷ "Increase of the intensity of white light gives a greater power for clear seeing through its enabling the retina

*From the Department of Ophthalmology and Otolaryngology, The Nicollet Clinic, Minneapolis, Minnesota.

to perceive greater detail. Secondly, with a given difference in coefficient of reflection between an object and its background the sensation difference is increased with the intensity of light. Therefore, greater visibility is produced. Thirdly, it narrows the pupil, thus resulting in fewer aberration effects and narrowing the cone of light, which in turn decreases the size of diffusion circles. The effect of increased intensity is to speed up clear seeing, lessen fatigue, and prevent ocular discomforts."

The blurred image of the ametropic eye is cleared considerably by increasing the intensity of light, thereby allowing the retina to see more detail. According to Ferree and Rand,⁷ an eye which is corrected for medium and high intensities of light may give much trouble when used in lower intensities. If this is true, it is reasonable to expect that eyes corrected for the light intensities ordinarily used in test charts would not be benefited but would be harmed by tinted lenses, which automatically tone down the intensity of light and force the eye to work in a decreased brightness. Such individuals demand more light to counteract the effect of the colored glass. Increased intensity of light is especially important in elderly people. They have less difficulty in seeing near objects and there is a greater range over which clear seeing is possible. In myopes and hyperopes there is an abnormal relation for accommodation and convergence. In these the strain of attempting to see clearly is much reduced by high intensities of light. It is not, then, the brightness of light which produces the asthenopic symptoms, but it is the faulty lighting arrangements, which cause a faulty distribution of light. Instead of lowering the brightness, more attention must be paid toward effecting a proper distribution. This entails, first, the elimination of unevenness of illumination, which produces glaring and brilliant surfaces; second, the proper diffusion of light; third, careful attention to the angle of incidence; and, fourth, elimination of high brilliances in the field of view.

It is apparent that many ophthalmologists do not properly appreciate the power of the normal retina for adapting itself to the various degrees of illumination to which it is subjected. This process of adjustment to the illumination present is an experience common to all. An individual who goes from a brightly lighted room into a

dark one at first sees nothing, but the longer he stays in the room the more his vision adjusts itself, so that finally he is able to distinguish objects about him. After his vision is adjusted, if he again returns to the brightly lighted room, he finds that at first he is so dazzled that he sees poorly, but after a time the sense of dazzling and poor vision disappears.

This power of the eye to adjust itself to the illumination present is called adaptation, or, specifically, light adaptation. By this process the healthy eye is adjusted to broad ranges of varying illumination and this adaptive power is fully sufficient to keep the eye healthy in all degrees of solar illumination.

It is a fact easily comprehended that tinted lenses impair light adaptation by preventing its exercise, and if it were generally recognized that healthy adaptation is necessary, there would be fewer eyes weakened and made less useful by tinted lenses.

In a statement embodying the principle that tinted lenses are not necessary for a healthy eye, certain abnormal conditions must be considered as modifying factors. These include, first, the intensity of the light to which the eye is subjected; second, the duration of the exposure; third, the presence of glare; and, fourth, the occupation of the individual.

Where a person is subjected to intense degrees of sunlight, protective lenses become an absolute necessity. This condition arises in high altitudes where the absorptive properties of the atmosphere are not so great and consequently there is a high concentration of radiant energy. Experiment has shown that the chief danger lies, not in the ultraviolet radiation, but in the infra-red. Prolonged exposure, even in healthy eyes, produces its effect by lowering the resistance of the individual.

Glare, which is defined as the unpleasant effect produced by excessive reflection from below, is usually caused by reflection from large bodies of water, snow, ice, sand or rock. This light itself may be of moderate intensity, but when reflected from a large body of snow, produces an intense effect. It is estimated that snow reflects 70 per cent of the sunlight. According to Lawson's experiment,⁸ the effects of glare are produced by the luminous and infra-red portions of the spectrum. Snowblindness is in reality a sunburn of the conjunctiva. Certain occupations

and trades produce effects from radiant energy due to the excessive concentration of certain wave lengths. It is a fairly well established fact that there is a type of cataract produced in individuals who are subjected to intense heat waves. The ultraviolet wave plays an important role in the ocular disturbances manifested in acetylene welders.

In certain disease conditions of the eye, or in structural defects, either congenital or acquired, it becomes necessary for the individual to use a tinted lens to alleviate the photophobia which is an accompaniment of his ocular disturbance; for here the eye must be protected from ordinary sunlight as there is great sensitivity to light, and here we must put the eye at rest, for, as Fuchs⁵ says, the eye is stimulated by light to the performance of its function and shutting out the light is the first requisite.

Photophobia, defined as the discomfort and sense of dazzling and blindness produced by light, originates both in the terminal fibers of the trigeminal nerve and in the retina. These nerve terminals end mostly in the cornea and for this reason superficial inflammations of the cornea are accompanied by marked photophobia. Since the iris has an abundant supply of sensory nerves, there is also marked photophobia when it becomes inflamed. In diseased conditions of the retina photophobia may be a marked symptom, but here it is not the sensory fibers that play a role, but the optical fibers which carry the reflex to the pupil.

Among the structural defects for which a tinted lens is advisable may be mentioned albinism, coloboma of the iris, and aphakia. It may be well here to call special attention to the need for a tinted lens for the aphakic eye. After the extraction of a cataract the eye is deprived of its most effective protection against the ultraviolet light and all aphakic patients should wear a tinted lens out of doors, except on dark days.

When we place a tinted lens before the eye, we have for our object the total or partial elimination of certain spectral radiations. We can, by selecting certain types of glass combined with certain colors, confine our results to particular areas of the spectrum. As mentioned above, the harmful effects of radiant energy are produced by the rays from three portions of the spectrum—the ultraviolet portion, the visible portion and the infra-red portion. It is known that certain

types of glass produce this result in a selective manner and in general can be arranged in three groups. In the first group we have the ordinary colored glasses which are produced with no scientific basis and recommended for general use in healthy or diseased eyes. In the second group are those which absorb the ultraviolet rays and in the third group are those which absorb the heat rays. In late years there has been placed on the market a glass which is recommended for absorption of visible rays only.

It is generally agreed that the elimination of the ultra-violet radiation is a simple matter and glasses recommended for this purpose, such as Hygat, Euphos, Crookes and Ultrasin, are quite satisfactory.

In 1925 Sir Arnold Lawson⁶ carried out a series of experiments to determine the absorptive power of various tinted lenses. In these studies he used: (1) No. 3 London Smoke; (2) three shades of amber; (3) four shades of Fieusol; (4) Crookes A, A2, B, B2; and (5) peacock blue. Concerning the ultraviolet rays, he concluded that the darker shades of Fieusol were the most effective. Very close to these were placed the Crookes glass; then came amber, and least protective of all was London smoke. All three shades of Crookes were equally effective and did not protect the eye from ultraviolet radiations under 3,500 a. u. The only tints which cut off the ultraviolet completely were the darker shades of Fieusol. Lawson recommended these instead of Crookes for acetylene welders or for use in high altitudes.

In respect to the heat rays, the protecting glasses in general use are deficient, for, as pointed out by Imre,⁸ they not only fail to give the desired protection but actually lengthen a considerable quantity of the visible rays and change them to heat rays and thus produce heat behind the glasses. Imre⁸ advises that these rays be held back, not by absorption, but by reflection. For the accomplishment of this result he advises the use of thin, transparent, metallic layers which admit a sufficient quantity of the visible spectrum but at the same time have great reflective ability. He has shown that glasses covered with a thin metallic layer of platinum or gold can protect the eye equally from ultraviolet and infra-red and that the visible spectrum can be admitted in any desired quantity. In his clinical practice he finds that the metallic glasses

are very agreeable to the patients, as there is no accumulation of heat behind them, but rather an actual feeling of coolness.

In his experiments Lawson⁴ finds that peacock blue is most effective for infra-red absorption and that this is closely followed by Crookes B2 and F 4 & 5, amber being less effective than either.

The luminous rays are cut out equally well by all glasses, but Fieusol 4 & 5 are superior to Crookes in high sunlight and glare, and peacock blue is best in extreme cases.

For active inflammatory conditions in the eyes, Lawson⁴ advises the use of peacock blue. Imre⁸ is quite enthusiastic over the results obtained in these patients with the use of metallic reflecting glasses. He points out the advantages of less heat production behind the lens. This heat, he maintains, dries the cornea and results in blinking and increased tear production, thus irritating the inflamed eye. From his observation he concludes that these patients are far more comfortable with the reflecting glasses and that the cure is greatly accelerated.

The prescribing of tinted lenses for the apparently healthy eye without tangible and sufficient reason for so doing is a practice to be condemned. It is no more logical and fully as reprehensible to place such a glass before an eye as it is to routinely add a +1 diopter lens for reading because the patient is forty-five years old. It is not only unscientific, but in many cases positively contraindicated. When we stop to realize that under ordinary circumstances the sound eye needs no protection against ultraviolet ray and that the tinted lens cuts down the visible rays from 15 to 35 per cent or more, depending upon the shade, it is inconceivable that we prescribe a tint without full and sufficient reason. The retina is stimulated into activity by visible rays. Any means which lessen this stimulus interfere with the perceptive apparatus to some extent. It is true that certain individuals with apparently sound eyes are made miserable in ordinary sunlight. These individuals may be pathological-

ly affected, in that adaptation is slow or that adaptation, when once effected, is below normal, or they may in reality be mentally or physically abnormal. Very often in physical diseases or neurasthenia, the general function of the eye is impaired and in this type of patient help is needed.

Where the glare exists in moderate amount, attention should be directed to the lighting arrangement and hygienic measures before the easier method of tinted lenses is employed. If this were done, many cases of asthenopia attributed to light effects would be cured without cutting down the luminous spectrum.

In the myopic eye a tinted lens is more often needed. Here it is advisable to use a soft tint to cut down the sharpness of the image.

Ophthalmologists, then, should not be misled by advertising claims of various optical houses which for pecuniary reasons alone seek to popularize the routine prescribing of absorptive lenses, but should consider the absorptive glass as a therapeutic procedure to be used when indicated, and realize that it can be just as harmful to certain eyes as it can be helpful to others.

REFERENCES

1. Syme: Referred to by Elder (footnote 2).
2. Elder, W. S. D.: Pathological action of light upon eye. *Lancet* (June), 1926.
3. Abbott: Referred to by Lawson (footnote 3).
4. Lawson, Arnold: Tints and their value. *Brit. Jour. Ophth.*, 9:97, 1925. (Pres. address before Section of Ophth., Royal Soc. of Med., Nov., 1924.)
5. Fuchs: Textbook of ophthalmology, eighth ed.
6. Vogt: Referred to by Fuchs (footnote 5).
7. Ferree, C. E., and Rand, G.: Lighting and hygiene of eye. *Arch. Ophth.*, 2:1 (July), 1926.
8. Imre, J., Jr.: Schutzgläser mit dünnen Metallisichten. *Klin. Monatsbl. f. Augenh.*, 77:464 (Oct. 30), 1926.
9. Adrian, E. D., and Matthews, R.: Action on eye; processes involved in retinal excitation. *Jour. Physiol.*, 64:279, 1927.
10. Kühl, A.: Physiologic basis and physical properties of protective eye glasses. *Klin. Monatsbl. f. Augenh.*, 81:269, 1928.

STONE IN THE UPPER URINARY TRACT: ITS CLINICAL MANIFESTATIONS AND TREATMENT*

PHILIP F. DONOHUE, M.D., F.A.C.S.
Saint Paul

THE clinical picture of stone in the kidney or ureter in the majority of cases is typical. Possibility of the presence of renal or ureteral stone is at once suggested by the history of sharp severe pain beginning in the lumbar region and radiating forward and downward into the genitalia. Such pain is spoken of as renal colic and is scarcely ever mistaken for pain produced by other conditions. Morphine is required and the attack usually ends spontaneously. In many cases complete relief is experienced until a second similar attack occurs. In other cases, in the interval between colics there is constant dull achy pain in the flank of the affected side.

Not infrequently typical colics do not occur and the character of the pain is not suggestive. There may be only a dull achy pain which does not radiate though its location in the flank at once suggests the possibility of renal origin. In other cases not even flank discomfort may be noticed. This is particularly true with ureteral stone. Here there may be only vague discomfort in the upper or lower quadrant. Even the helpful lead that unilateral distribution offers may be lacking, the patient complaining only of vague generalized abdominal discomfort. Because of the atypical character and location of the pain many of these cases are mistaken for cholecystic disease, appendicitis, intestinal obstruction, and other intra-peritoneal conditions. Deaver has said that the possibility of renal or ureteral stone should be considered in any case of unexplained abdominal pain.

Of importance in the history of these cases is the character of the urine voided during or after an attack of pain. When gross hematuria is reported the presence of some lesion in the urinary tract is established and we need no longer concern ourselves with intra-peritoneal possibilities. In more than half the cases the voided urine is reported grossly clear. Unless the specimen is submitted to microscopic examination this fact is of no value in the history. When examination has been made in these cases of clear urine a

few red cells are almost regularly found, though their absence does not rule out stone.

In a considerable number of cases, during attacks of pain there suddenly occurs some degree of bladder irritation. When this is marked there is an almost constant and severe desire to void which compels voiding every few minutes with several urethral burning and terminal tenesmus. In other cases the irritation may be nothing more than itching discomfort referred to the urethra and bladder associated with an abnormally frequent but not compelling desire to void, the actual number of voidings being no more frequent than normal. In many cases the bladder irritation immediately disappears with the end of the pain. In other cases the irritation continues and may eventually become the chief symptom complained of. This is particularly true in the event of infection occurring as a complication of calculus disease. Examination of the urine in these cases will show pus cells, and when the infection is marked the urine is often quite cloudy.

The history of the passage of a small stone or gravel during an attack or some time later is, of course, conclusive evidence that stone has been present in the kidney or the ureter. This occurrence is reported in the history of approximately one-third of the cases. When the passage of stone is followed sometime later by persisting flank pain, repeated attacks of colic, bladder irritation, or the voiding of bloody urine, it may be assumed either that multiple stones are present, recurrence of the stone has taken place, infection has occurred, or that some other condition of the upper urinary tract associated with the presence of stone is the cause of these symptoms.

The examination of these patients should contemplate more than mere proof or exclusion of the presence of stone. The exact location of the stone can and should be demonstrated. Associated conditions of kidney or ureter which may have influenced the formation of the stone or are likely to invite its recurrence should be discovered and their importance appraised. Among the conditions found associated with calculus disease that may be considered important in this

*Read before the sixty-first annual meeting of Wabasha County Medical Society, Wabasha, Minnesota, July 11, 1929.

way are loose sagging kidney with kinking of the ureter, anomalous renal vessels causing obstruction at the uretero-pelvic junction, various other forms of ureteral obstruction such as stricture and partial stenosis of the uretero-vesical orifice, various abnormalities associated with ob-

struction that serve as contributing causes in the formation and recurrence of stone have been pointed out. The destructive changes in kidney and ureter resulting from stone have been alluded to and will be further emphasized in connection with the cases to be reported. It is also our purpose to

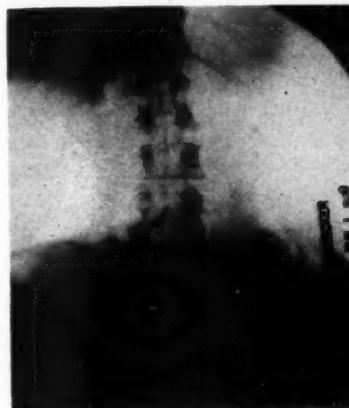


Fig. 1. Plain x-ray. Branched stone in right kidney. Medium sized stone in left kidney.



Fig. 2. Bilateral pyelograms. Advanced hydronephrosis of right kidney. Stone in right kidney pelvis. Uretero-pelvic junction obstruction due to aberrant renal artery.



Fig. 3. Plain x-ray. Faint shadows in region of right kidney tracing the outline of calyces. (Pyelogram localized these shadows in pelvis.) Single oval shadow above (cortical stone).

struction, and finally persisting upper urinary tract infection. Most of the conditions mentioned interfere mechanically or otherwise with the peristaltic activity of pelvis and ureter essential to normal movement of urine and prevention of stasis.

Any degree of obstruction impedes the passage of urine from the kidney to the bladder, causing stasis of urine in the kidney pelvis in early cases and hydro-nephrosis in advanced cases. In the cases in which there is an inherent tendency to form stones, recurrences are more likely when there is any degree of obstruction in the kidney or ureter.

Of importance in the management of these cases is the condition of the upper urinary tract on the other side. This information is particularly needed in the cases with stones in both kidneys, since experience has shown the wisdom of operating first on the functionally and anatomically better kidney. In cases of calculus pyonephrosis knowledge that the remaining kidney is capable of good function is essential before nephrectomy can be undertaken safely.

The clinical picture of renal and ureteral stone has been described. Associated conditions frequently found in the examination of these cases

present the treatment of renal and ureteral calculus. In many cases removal of the stone will be sufficient. In cases in which associated conditions are present it will be necessary also to correct these, thus rendering recurrence of stone less likely. The indications for treatment and the various procedures employed are illustrated by summarized clinical records of typical cases, representing many of the circumstances in which stones in the kidney and ureter are found. These reports will also serve to illustrate the diagnostic methods employed in these cases.

Case 1.—Female, 38 years.

Complaint—Frequency of urination. Pain in right flank. Hematuria. Discomfort in left flank.

Present Illness—Began two years ago, following last pregnancy, with pain, frequency and hematuria. Periods during which she voids, every half hour by day and once during the night. Attacks of dull aching pain in right flank prior to one year ago, at which time a severe attack of colicky pain. No typical radiation. Repeated hematuria. Recently vague discomfort in left flank. Tenderness to deep percussion in both flanks.

Urine—Clear. Microscopic: 100 pus cells, moderate number red blood cells.

Plain X-ray—In right kidney field is a large branched stone. In left kidney field is a smaller shadow toward the lower pole (Figure 1).

Cystoscopy—Bladder mucosa shows chronic inflammatory change over trigone and floor. Indigo-carmine

appeared in 5 minutes on left with poor concentration; on right side in 7 minutes, even poorer concentration.

Pyelograms—Left pyelogram shows slight dilatation of minor calyces. Shadow localizes in inferior calyx.

Diagnosis—Renal calculi, bilateral, with infection.

Treatment—Left pelvico-lithotomy (left kidney function best). Complete relief of left sided symptoms.

Three months later right nephrotomy, with removal of multiple calculi. Complete relief of right sided symptoms.

COMMENT

The better kidney was operated upon first for the following reasons: Better function, fairly good anatomic condition, and the presence of a relatively small stone which could be removed by pyelotomy, the preferred procedure. With the function of this kidney improved, radical removal of the branched stone from the remaining kidney was undertaken safely.

Removal of either kidney is avoided in these cases of bilateral lithiasis because of the frequency of recurrence of stone on one or both sides. Even the employment of wide nephrotomy for the removal of large branched stones is justifiable and should be performed in cases in which marked damage of the kidney parenchyma has not occurred. The danger of postoperative hemorrhage following this procedure demands careful hemostasis and this is accomplished by tightly approximating the margins of the calyces with a strong continuous suture after the method of Schwyzer, fortifying this with several deeply placed mattress sutures through the cortex.

Case 2.—Male, 56 years.

Complaint—Hematuria, frequent painful urination. Pain over the bladder.

Present Illness—Four months ago noticed dark chocolate colored urine associated with slight frequency, nocturia two to three times, slight urgency but no burning at urination. Urine cleared in a few days but slight frequency and urgency continued. Bloody urine occurred on four or five occasions. Pain in bladder region at times. Fifteen years ago passed a small stone. Physical examination negative.

Urine—Dark but clear. Microscopic: many pus and moderate number of red blood cells.

Plain X-ray—Large oval shadow in right kidney region.

Cystoscopy—Bladder normal. Slight redness of right ureteral orifice. Indigo-carmine appeared in 7 minutes on the left in good concentration. No dye seen on right after 12 minutes. Ureters catheterized. Seventy-five c.c. cloudy urine aspirated from right kidney, no dye coloring.

Pyelograms—Marked dilatation of right pelvis and major calyces (Figure 2).

Diagnosis—Right hydro-nephrosis. Uretero-pelvic junction obstruction, due to anomalous artery. Renal calculus.

Treatment—Nephrectomy. Complete relief. At operation an anomalous artery accounting for the uretero-pelvic junction obstruction was found.

COMMENT

This case illustrates the production of hydro-nephrosis due to obstruction at the uretero-pelvic junction by an anomalous renal artery. It is probable that stone formation in this patient was secondary to the stagnation of urine in the kidney pelvis caused by the obstruction. Marked damage to the kidney had occurred and nephrectomy was the rational procedure. In other cases seen earlier, hydro-nephrosis may not be so advanced and the kidney may still be capable of recovering a good deal of its function if the obstruction is corrected at the same time the stone is removed. In such cases conservative surgery is indicated and the anomalous vessel is divided and the stone removed through an incision in the pelvis.

Case 3.—Male, age 45.

Complaint—Pain in right lumbar region.

Present Illness—One year ago sudden attack of sharp pain in right lumbar area radiating into inguinal region. Dull pain ever since. Patient unable to work because of pain. No urinary symptoms. Marked tenderness to deep percussion in right flank.

Urine—Clear. Microscopic: occasional pus cell, no red blood cells.

Plain X-ray—Oval shell-like shadow, size of olive, opposite second lumbar vertebrae on right. Group of shadows in right kidney area closely tracing outline of upper and middle calyces (Figure 3).

Cystoscopy—Slight cystitis confined to trigone. Ureteral orifices normal. Clear jets of urine from each.

Pyelograms—Right pyelogram, moderate hydro-nephrosis. Oval shadow outside pelvis. Faint shadows localized in upper and middle calyces. Left pyelogram, slight dilatation of true pelvis, sharp bend in ureter.

Diagnosis—Calcareous pyelo-nephritis, right. Cortical renal stone, right.

Treatment—Right nephrectomy after exploration showed impossibility of removal of fine stone particles, and because of good anatomic condition of left kidney. Complete relief.

COMMENT

In this case a kidney capable of good function and showing only moderate anatomic change was excised because it was found impossible to remove all the fine calcareous particles scattered throughout the pelvis and calyces. Any one of these particles would have served as a nucleus for further stone formation. It was also apparent that this calcareous material was due to infection of the kidney by urea splitting organisms of the bacillus proteus group with the for-

mation of alkaline urine and the precipitation of inorganic salts. Infection of the bladder with organisms of this group is responsible for the condition called alkaline incrustated cystitis. All cases of infection of the kidney in which cultures of ureteral catheter specimens show organisms

the finding of a few red blood cells on microscopic examination of the urine. In cases of horse-shoe kidney some degree of obstruction at the uretero-pelvic junction is frequently produced by the abnormal relations of the blood vessels, the under rotation of the kidney, and its faulty

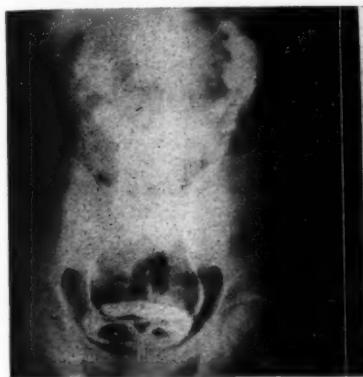


Fig. 4. Bilateral pyelograms. Horse-shoe kidney. Left renal calculus.



Fig. 5. Left pyelogram. Left ectopic kidney with stone.



Fig. 6. Left pyelo-ureterogram. Moderately advanced hydronephrosis and hydro-ureter. Large stone in left ureter at level of third and fourth sacral vertebra.

of this group should be submitted to vigorous treatment to destroy these bacteria and prevent the formation of calcareous material.

Case 4.—Male, 36 years.

Complaint—Pain in left lower abdomen. Hematuria.

Present Illness—Began six months ago with attacks of pain occurring at two to three day intervals. Pain worse when standing. No urinary symptoms. Blood found in urine at examination for life insurance. Tenderness in left abdomen along course of ureter and in left costo-vertebral angle.

Urine—Slightly cloudy. Microscopic: moderate number of red blood cells and pus cells.

Plain X-ray—Shadow on left opposite third lumbar vertebra.

Cystoscopy—Bladder normal. Clear urine from right orifice. No jets on left. Indigo-carmine appeared promptly from both sides. Concentration better on right. Ureters catheterized.

Pyelograms—Left pyelogram (Figure 4) shows abnormal rotation of kidney, calyces directed medially, lower ones almost to mid-line. Pelvis moderately dilated. Right pyelograms also show abnormal rotation with calyces directed medially. Lower poles drawn toward one another.

Diagnosis—Horse-shoe kidney. Left renal calculus.

Treatment—Left nephrotomy and removal of stone. Presence of horse-shoe kidney confirmed. Complete relief of symptoms.

COMMENT

This was a case of unexplained abdominal pain. Urologic investigation was prompted by

position. Corrective surgery is often out of the question, and in this case removal of the stone only was performed. Recurrence of stone in this patient would not be surprising.

Case 5.—Male, age 54.

Complaint—Pain in left flank.

Present Illness—Past four years attacks of pain in left side of back. Pain radiates down into thigh. Associated with attacks of pain are periods of frequency and dysuria. At times urine is cloudy. Flank pain constant past eight months. Tenderness left costo-vertebral angle.

Urine—Clear. Microscopic: few pus and red blood cells.

Plain X-ray—Shadow 1x1.5 cm. to the left of the lower sacrum.

Cystoscopy—Bladder normal. Ureteral orifices normal. Indigo-carmine 3.5 min. on right, 5 minutes on left, with better concentration on right. F6 catheter full length on right, 18 cm. on left. Good flow of urine from right, poor flow from left.

Pyelogram—Left kidney in pelvis over lower portion of sacrum. Calyces fairly normal. Ureter folded over. Shadow localizes in pelvis (Figure 5).

Diagnosis—Ectopic left kidney. Renal calculus, left.

Treatment—Nephrectomy. Complete relief.

COMMENT

Ectopic kidney should not be confused with a loose kidney, which occasionally migrates to the pelvis. The ectopic kidney receiving its blood supply from the aorta or iliac artery at the level

it occupies in the body is in a fixed position and its ureter is usually not redundant. A loose kidney with a much lengthened vascular pedicle is capable of considerable descent which can be demonstrated by pyelograms made in both horizontal and vertical positions and its ureter is redundant. The differentiation between these two conditions is of importance in calculus disease, since stone in an ectopic kidney is best treated by nephrectomy and a loose kidney in good anatomic condition may be appropriately treated by nephropexy after removal of the stone.

Case 6.—Female, 28 years.

Complaint—Pain in left side.

Present Illness—Attacks of pain since childhood. Attacks worse past two years. Pain begins in left lower quadrant of abdomen and radiates up into flank. Occasional passage of bloody urine. Definite tenderness to pressure in left flank and along the course of the left ureter.

Urine—Cloudy. Microscopic: many pus and red blood cells.

Plain X-ray—Fairly well defined shadow in region of lower left ureter.

Cystoscopy—Bladder normal. Chronic inflammatory reaction about left ureteral orifice. Orifice reddened and swollen. Right ureteral orifice normal. Indigo-carmine appeared more promptly and in better concentration from the right side. Resistance to passage of ureteral catheter met on left side at about 4 cm. Passage of catheter to kidney finally accomplished.

Pyelograms—Left kidney pelvis extremely dilated. Ureter markedly dilated. Shadow localized in lower ureter (Figure 6).

Diagnosis—Left ureteral stone with hydro-ureter and hydro-nephrosis. Marked infection of left kidney.

Treatment—Nephro-ureterectomy. Complete relief.

COMMENT

Removal of the entire ureter with the stone as well as the kidney is desirable in cases of marked hydro-ureter due to calculus. If only nephrectomy with removal of the stone is performed the ureter remains as an atonic hollow structure very liable to infection, if this has not already occurred. An infected blind ureter may be the cause of persistent cystitis and require removal at a second operation. In occasional cases carcinoma occurs in infected ureters remaining after nephrectomy and removal of the stone.

Case 7.—Male, 63 years.

Complaint—Attacks of pain both sides of lower abdomen. Cloudy urine. Nocturia.

Present Illness—Past three or four years feeling of distress over entire lower abdomen with occasional sharp severe attacks of pain. Pain usually on left side, but has been also on right. No radiation. Morphine for relief. No bladder symptoms but blood and pus were found in the urine after an attack. Nocturia

two to three times. During the past few weeks has noticed swelling of the face and general loss of strength. No tenderness in abdomen, or flanks. General condition fair.

Urine—Clear. Microscopic: 12 pus and 60 red blood cells.

Plain X-ray—Oval irregular shadow to left of sacrum.

Cystoscopy—Bladder normal. Ureteral orifices normal. Indigo-carmine appeared in 8.5 minutes on the left and in 12 minutes on the right. Concentration of dye poor on both sides.

Pyelograms—Marked hydro-nephrosis and hydro-ureter on left. Shadow localizes in left ureter and dilatation begins immediately above (Figure 7). Marked hydro-nephrosis of right kidney pelvis, not as marked as on the left. Right ureter not well outlined.

Diagnosis—Left ureteral stone. Bilateral hydro-nephrosis, most marked on the left.

Treatment—Left uretero-lithotomy. Course of pelvic lavages and dilatations of right ureter. Complete relief.

COMMENT

Lower abdominal pain in this case was diffuse and was not suggestive of lithiasis. Here again urologic examination was prompted only by the microscopic examination of the urine. This case illustrates the value of investigating the opposite kidney even though no symptoms may have been present on that side, and bears out the contention that pyelography together with functional tests are more reliable in demonstrating the anatomic condition of a kidney than functional tests alone. In this case right renal function was within normal limits, as estimated by indigo-carmine after intravenous injection. The pyelogram of this kidney, however, showed advanced hydro-nephrosis, almost as marked as on the left side. In this case a serious mistake might have been made if the left kidney and ureter had been removed along with the stone. The function of the right kidney alone could scarcely have maintained life for any length of time. Nephrectomy would have been preferable in this patient if the right kidney had been anatomically sound. As it was, removal of the stone only was all that could be undertaken safely.

Case 8.—Male, age 29.

Complaint—Right flank pain. Hematuria.

Present Illness—Severe right flank pain began four years ago. Hematuria for two days. Pain lasted four days. Several such attacks. Morphine for relief. Ache in right flank between attacks. No bladder irritation. Marked tenderness in right costo-vertebral angle. Marked tenderness in right lower abdomen.

Urine—Clear. Microscopic: 40 pus cells, 60 red blood cells.

Plain X-ray—Oval shadow 1x0.5 cm. to right of lower sacrum (Figure 8).

Cystoscopy—Edema of right ureteral orifice. Bulging inward of bladder wall above right ureteral orifice. Left ureteral orifice normal. Bladder mucosa normal. Indigo-carmine, intravenously, appeared in three min-

sharp pain in right lower abdomen, referred upward toward crest of ilium. Two such attacks since. Morphine for relief. Discomfort in right flank noticed occasionally since first attack. No urinary symptoms. Marked tenderness in right lower quadrant. Moderate tenderness in right costo-vertebral angle.



Fig. 7. Bilateral pyelograms. Advanced hydronephrosis and hydro-ureter with infection. Large stone in left ureter 5 cm. above uretero-vesicle orifice.

Fig. 8. Plain x-ray. Right ureteral stone just above uretero-vesical orifice. (Removed by cystoscopic manipulation.)

utes from left orifice. No appearance on right after 12 minutes.

Pyelogram—Right hydro-ureter. Shadow included in ureterogram. Slight dilatation of kidney pelvis, right.

Diagnosis—Right ureteral lithiasis. Obstruction of ureter. Hydro-ureter.

Treatment—Cystoscopic manipulation. Meatotomy of right ureteral orifice. Stone extracted from ureter. Stone removed from bladder with cystoscopic Rongeur. Complete relief.

COMMENT

Many stones impacted in the vesical portion of the ureter or just above this point, may be removed by cystoscopic methods. Several attempts to remove such a stone should be made before more radical operative removal is resorted to. The employment of this manipulation should be contingent on: (1) good condition of the patient; (2) investigation of the case showing that nephrectomy is not necessary and that removal of the stone will be sufficient; (3) no associated conditions present in the upper urinary tract demanding operative treatment; and (4) that further significant damage to the kidney by the existing obstruction during the time consumed in these manipulations is unlikely.

Case 9.—Male, age 21.

Complaint—Pain right lower abdomen. Ache in right flank.

Present Illness—Began two months ago with sudden

Urine—Clear. Microscopic: no pus, few red blood cells.

Plain X-ray—Indistinct shadow, small, in region of lower right ureter. Subsequent plates showed no shadows.

Cystoscopy—Bladder normal. Indigo-carmine appeared in 4 minutes on the left. No appearance on the right after 10 minutes. Ureteral catheter F6 passed full length on right. Twenty c.c. of urine immediately aspirated from right kidney pelvis. Patient immediately experienced relief.

Pyelogram—Right pyelogram normal. Negative for stone.

Cystoscopy—Soft wax bulb passed through length of right ureter. Examination after removal showed two or three linear scratches.

Diagnosis—Right ureteral lithiasis, impacted. (Permeable stone.)

Treatment—Cystoscopy. Ureter dilated to F12. Seven days later patient passed stone during voiding. Stone .5x.35 cm. Recovery complete.

COMMENT

This case might have been mistaken for acute appendicitis when first seen because of the nature and location of the pain and the absence of urinary symptoms. However, discomfort had been noticed in the right flank and there was tenderness in this area to palpation. Of particular interest in this case is the method employed to diagnose the stone in the ureter. X-ray examination on one occasion showed an indistinct shadow

but several subsequent examinations showed no shadows suggestive of calculus. Although the patient carefully strained his urine at each voiding no stone was recovered. A soft wax bulb was passed to and fro in the ureter of the affected side. This method is recommended in cases in which typical colics are repeated, no stones are passed, and x -ray examinations and pyelography are both negative for calculus. In many cases the presence of soft stones in the ureter that cast no shadow on an x -ray plate can only be diagnosed in this way.

CONCLUSION

In conclusion it should be emphasized that there are an appreciable number of cases of renal and ureteral stone with symptoms that may be indefinite or misleading. It will be necessary to keep a sharp lookout for these cases if they are to be recognized. A carefully taken history with proper appraisal of the facts obtained is essential.

Cases exhibiting typical colics should never be mistaken for anything else. The presence of stone should be considered very probable in cases with pain of any sort associated with urinary symptoms. Following Deaver's axiom, any cases of unexplained abdominal pain should be suspected of having calculus. All cases exhibiting these features should be investigated. The information furnished by cystoscopy, ureteral catheterization, divided functional tests and pyelography will lead to a diagnosis and enable one to decide between conservative and radical treatment. In many cases removal of the stone will be sufficient. In all cases the possibility of associated conditions causing stasis and influencing the formation of stone should be kept in mind. In addition to removal of the stone these conditions should be recognized and corrected when present. Conservation of kidney tissue will be effected and the instances of recurrence of stone will be kept to a minimum.

LYDIN NOT ACCEPTABLE FOR N. N. R.

The Council on Pharmacy and Chemistry reports that "Lydin," a product of the Harrower Laboratory, Inc., is claimed to be "a physiological sex-stimulant of note" consisting of a combination of "the male sex hormone" with "the antisterility fat-soluble Vitamin E." It is marketed in capsules for oral administration and is recommended for use in the treatment of impotence with the suggestion that "the indications are too well known to be enumerated." The Council publishes a report on the biologic assay of "Lydin" by T. F. Gallagher sent to the Council by F. C. Koch, head of the Department of Physiological Chemistry and Pharmacology of the University of Chicago. This

study shows that when administered by mouth "Lydin" is without effect as measured on capons by the comb growth method or on guinea-pigs as measured by the spermatozoa motility test. Brown-Sequard was convinced that an extract of the testes promoted the vitality, but his experiments were not confirmed or accepted. In the meantime, the available knowledge of the glands of internal secretion has aroused commercial promoters to the exploitation of all sorts of glandular extracts and combinations without an iota of evidence to show that any preparation of extracts of the testes, singly or in combination, has ever been shown to have the slightest effect on the human body when given by mouth. (Jour. A. M. A., July 19, 1930, p. 201.)

CARCINOMA OF THE STOMACH*

KARL W. ANDERSON, M.D.
Minneapolis

THE prevalent attitude towards carcinoma of the stomach is a pessimistic one. Such an attitude of hopelessness does not tend towards progress, either in research or in regard to aggressive treatment. The internist has in the past assumed this detrimental attitude more than the surgeon. One of our recent associates in the University Hospital told the students that the proper treatment of carcinoma of the stomach when the diagnosis was made was to give the patient some white powder in a palliative fashion, as they all soon die, from the disease. Eventually we all die, but to put this time as far in the future as possible is one of the aims of the medical profession. It is evident that to do this we must assume an aggressive attitude. It is with this spirit that we best attack the problem of carcinoma of the stomach. This aggressive spirit is just as important in the diagnostic field as it is in the surgical. This is illustrated by the following case.

D. W., aged 67, was operated upon by Dr. O. H. Wangensteen. Since August, 1929, the patient had had epigastric distress, consisting of a sensation of fullness immediately after meals, even following small meals. The use of alkalies or frequent feedings gave him no relief. The only relief he noted was obtained by belching. The patient had no history of pain, nausea or vomiting nor any food intolerance. Tarry stools were never noted. Since August, 1929, he had lost thirty pounds in weight. He was sent to the University Hospital in January, 1930. He was a white, senile, emaciated individual who was ambulatory and in no apparent distress. In his abdomen there was tenderness and pain on palpation, but no definite mass could be felt. The gastric analysis showed a total acidity of 14, but no free HCl. Occult blood was found in the stool in all examinations. Blood chemistry was within normal limits, but morphologically his blood showed a secondary anemia. The interest in this case centers itself on the gastrointestinal tract. Fluoroscopic examination by Dr. L. Rigler showed a large filling defect on the greater curvature of the stomach and within this area a large ulceration could be made out near the greater curvature. In the distal third of the stomach there was an infiltration that appeared to be more

scirrhous in type and extended mostly along the lesser curvature. Some peristalsis could be made out along the greater curvature in this region. The pylorus was wide open, suggesting infiltration, and the barium meal poured through very rapidly. The whole picture was quite characteristic of an advanced malignancy with ulceration. The duodenal bulb filled out well and appeared normal. There was marked dilatation and regurgitation in the second portion. At the end of six hours the head of the meal was in the cecum and a small amount of barium could be made out in the upper portion of the stomach which was probably in one of the ulcerated areas. Conclusions: Carcinoma involving three-fourths of the stomach.

In spite of the fact that this case involved so much of the stomach no metastasis could be demonstrated. That is, no rectal shelf, no enlarged glands, no nodules in the liver or umbilicus, no jaundice nor metastasis in the lung. Dr. O. H. Wangensteen did a total gastric resection in which the lower inch of the esophagus had to be removed. The end of the esophagus was anastomosed to the jejunum and an entero-anastomosis between the afferent and efferent loops of the jejunum was made. Fluids were started by mouth on the fifth day. He made an uneventful recovery and is now up and around and is eating a semi-solid diet without any discomfort.

It is interesting to speculate on what will happen to the part of the small bowel that was anastomosed to the esophagus. It is evident that the small bowel has a great power of dilatation and hypertrophy. This was evident in a case of multiple stenosis of the small bowel that was recently on our service. Pouch-like enlargements were noted all through the small bowel when a barium meal was given. These pouches simulated stomachs, in size and shape. We anticipate that part of the small bowel used in the anastomoses will dilate and become hypertrophied. Barium meal examination done March 10th showed a beginning dilatation of cone-like enlargement in this area. He has no diarrhea. There are one or two formed bowel movements daily.

So far surgery is the only salvation in this type of case, and it is only by the aggressive attitude that a few of these carcinomas of the stomach, usually called inoperable, have any chance whatever.

In the past I believe we have been prone to call a case inoperable on insufficient data. A

*From the Medical Service, University Hospital, Minneapolis. Presented before the Minnesota Society of Internal Medicine, Duluth, May 26, 1930.

pathologist⁴ in London has made the observation that from 20 to 25 per cent of all cases of carcinoma in his series that died unoperated had no lymph node involvement and no metastases, therefore they were purely local growths. Surely it is more important to explore a few abdomens than to have such a large percentage in one series where gastric resection was not attempted. It is true that no one can state the time when metastasis occurs, but when one is unable to demonstrate any metastasis clinically or by roentgenological examination, the advisability of laparotomy should be considered. In some cases where laparotomy previously has been performed and the growth considered inoperable, a second exploration is not out of order if, when the patient comes under one's observation, there is no evidence of metastasis. This is especially true in cases where the previous operator had limited experience. This is illustrated in the following case.

Mrs. S., seventy-five years of age, complained of pain in the epigastrium, loss of weight, nausea without vomiting and loss of appetite. For approximately two years the patient had been having gastrointestinal symptoms. The pain in the epigastrium seemed to have no relation to meals and she found no medication that gave her relief. The type of food that she ate did not appear to affect the pain nor increase her nausea. She gradually lost weight, from 185 pounds to 148 pounds, most of this during the preceding three months. She went to a hospital in June, 1929, where an operation was performed. The surgeon stated that he could do nothing for her and closed the abdomen. Three months after the exploratory operation, September, 1929, she was admitted to the University Hospital, because of gradual increase of her symptoms.

Physical examination revealed nothing of note except in the midepigastrium where there was a small palpable tumor, rather indefinite in outline. Blood showed hemoglobin 51 per cent, red blood cells 2,800,000, white blood cells 8,600. The blood Wassermann reaction was negative. Occult blood was present in the stool on each examination. X-ray examination of the stomach and duodenum revealed a characteristic filling defect in the pyloric portion of the stomach just proximal to the pylorus. This extended up to the junction of the pyloric and the middle third of the stomach. The appearance suggested a scirrhouous type of carcinoma, but there were several nodules projecting into the lumen of the stomach. The duodenal bulb showed considerable deformity, and there was also some deformity of the second portion of the duodenum. This might have been due to pressure or to perigastric and periduodenal adhesions. The diagnosis was: carcinoma of the stomach, pyloric end, probably operable. A second exploration was advised. Because of the condition of the blood, several transfusions were given before and one immediately following the operation. Partial gastric

resection was done. The operation was performed on September 23, 1929, by Dr. W. T. Peyton. The patient is gaining weight, has relief from her original complaints and is doing her own housework. Gastrointestinal x-ray study the 20th of June, 1930, revealed a normally functioning gastric resection. No evidence of metastasis in any part of the body could be found.

It is evident in cases like the ones just cited that no thoughtful surgeon or internist would claim a definite cure. But both patients have been given the only existing chance and life has been prolonged. How soon, if at all, the cancer will recur no one can state, but by pursuing the attitude thus exemplified a number of patients will enjoy a long period of relief.

We have noticed that many of our cases of carcinoma of the stomach, where there is a definite palpable mass, turn out to be operable in spite of the size of the tumor. In other words, it often appears that large, palpable carcinomas are purely local growths.

In many cases where there are vague symptoms only and no mass is palpable, the diagnosis is difficult. In these cases we rely upon the x-ray and fluoroscopic examination for the early diagnosis. The most important information is obtained by means of the fluoroscopic observation and the x-ray films chiefly serve to fix the impression gained from the fluoroscopic examination. It is our opinion that all patients in the cancer age who have gastrointestinal symptoms should have a barium meal examination and this should be repeated from time to time as long as the gastro-intestinal symptoms go unrelieved. This is especially true in cases where occult blood is found in the stool. Any case that shows persistent occult blood in the stool and where no satisfactory explanation therefor can be found, we believe should be considered for an exploratory laparotomy. Sometimes the cause of occult bleeding from the gastrointestinal tract is very difficult to unravel, requiring detailed studies. Where there is an x-ray report of a suspicion of a cancer in the stomach and occult blood is present in the stool, there is definite indication for exploration.

When a patient has been carefully studied and a diagnosis such as chronic gallbladder disease has been made and the patient subjected to operation but when after the operation no diminution of the symptoms is noted, we are likely to try to get rid of such a case in any way possible. The importance of post-operative follow-up work constantly impresses itself upon us. Thus we

have learned how easily a cancer of the stomach might be overlooked. Time and again this point is brought home to everybody who tries to carry out a systematic follow-up work on his patients. Thus we are trying to use as a working hypothesis that every patient in the cancer age has a potential malignancy until otherwise proven. The case of Mrs. F. illustrates this.

A housewife, aged 45, was admitted to the University Dispensary, in June, 1925, complaining of pain in the abdomen which was constant and gnawing, especially in the right upper quadrant. The condition was made worse by greasy foods and coffee. By occasional vomiting, unrelated to meals, the patient obtained almost complete relief. Soda and other medications gave no relief. The symptoms were of two years duration. The patient was constipated most of the time.

Physical examination was essentially negative except for moderate tenderness over the right, upper quadrant. X-ray examination of the gall-bladder showed no evidence of filling. X-ray examination of the stomach and duodenum showed no abnormalities. Gastric expression showed free HCl. Hemoglobin 80 per cent, red blood cells 4,500,000, white blood cells 7,200. In August, 1926, the patient was referred to the University Hospital where an appendectomy and cholecystectomy were performed. The stomach and duodenum were reported negative on direct palpation during the operation. The gallbladder and appendix appeared normal, but were removed and the patient made an uneventful recovery. Five weeks after the operation all her original symptoms returned. In January, 1927, she returned to the University Dispensary for further study. This time she complained of frequent vomiting after meals. Her weight was 134 pounds. Her best weight had been 160 pounds. X-ray of the gastrointestinal tract showed no abnormalities.

In October, 1927, she re-entered the hospital and physical examination was negative. Her weight was 106 pounds. Blood: Hemoglobin 90 per cent, red blood cells 4,500,000 and white blood cells 5,100. Stool examination was positive for occult blood on one examination. Gastric expression showed no retention, a free HCl of 6 and a total acidity of 20. X-ray examination by Dr. L. Rigler showed a normal stomach in size, shape and position. There was, however, an area on the lesser curvature in the middle third of the stomach extending from the junction of the proximal and middle third down to the junction of the pyloric and middle third which showed definite infiltration, rigidity and absence of peristalsis. There was some spasticity on the greater curvature of the stomach opposite this infiltration. The meal passed through the stomach without hindrance and the remainder of the stomach appeared normal. There was some slight suggestion of ulceration in the region of the infiltrated area. Conclusion: carcinoma, middle third of the stomach, lesser curvature, scirrhou type. No metastasis could be demonstrated in the liver, lymph nodes or lungs. There was no rectal shelf nor was there at any time any jaundice. November 9, 1927,

she was operated upon. The surgeon at first could find nothing and he wanted to close the abdomen, but the internist and the roentgenologist present at the operation insisted that the operator open the stomach and palpate the inside. This was done and he felt an infiltration in the area suggested by x-ray. Large lymph nodes on the greater curvature of the stomach were noted. The midportion of the lesser curvature of the stomach was occupied by an indefinite, indurated, thickened area. The size was approximately 2 cm. in diameter. The posterior wall of the stomach was adherent to the pancreas. A partial gastrectomy was performed. She made an uneventful recovery. The pathologist reported a small, firm, flat tumor of the lesser curvature of the stomach, 2 cm. in diameter, with edges slightly elevated. Microscopic examination showed thin infiltrating cords of epithelium resembling lymphoid cells and there was marked fibrosis. Diagnosis: scirrhou carcinoma.

Her symptoms did not recur and the patient gradually gained weight. Since her operation she has gained approximately forty pounds and has no gastric symptoms. At this time we are unable to demonstrate any metastasis or recurrence in the stomach.

In this connection it is probably fitting to cite another case where Dr. F. W. Bissell,² formerly roentgenologist of the University Hospital, made a diagnosis of early scirrhou carcinoma of the pyloric end of the stomach. An exploratory operation was performed but the surgeon claimed he could find no carcinoma. But, he did not open the stomach. Ten years later the patient died at the Ancker Hospital in St. Paul, and at necropsy a scirrhou carcinoma involving the entire stomach was found. This demonstrates a point successfully fought out years ago in regard to duodenal ulcer and equally true in regard to explorations for cancer of the stomach; namely, that an explorative laparotomy cannot be accepted as negative until the stomach has been palpated from the inside.

In this connection I wish to cite a case related by Dr. E. T. Bell,³ chief of the Department of Pathology. A diagnosis of carcinoma of the stomach had been made and an exploratory operation performed. The surgeon found numerous large glands in the region of the stomach. He removed a few of them, but thinking that the carcinoma was inoperable because of the glands, no gastric resection was done. Section of the nodes showed a scirrhou carcinoma. The patient was practically symptom-free for two years, but after four years died from scirrhou carcinoma involving practically the entire stomach.

An interesting phase of the subject is being

studied by Dr. J. Sagel,³ Fellow in the Roentgenological Department at our hospital. In a series of approximately fifty cases of carcinoma of the stomach that have been studied by the Roentgenological Department for the last ten months, approximately 75 per cent have seen a physician because of gastrointestinal symptoms six months to a year before they were referred to the Dispensary or had any gastrointestinal study. That means that the majority of cases in this series had seen their doctor early, had had a superficial examination and been given some prescription and usually a diet and told to report back in from two weeks to a month. The majority of these cases were in the so-called cancer age. It is significant that 5 per cent of the cases were examined behind the fluoroscopic screen by the local physician from two to four weeks previous to the admission to our hospital and told that the stomach and duodenum were normal. These facts are worthy of serious consideration from several points of view. For one thing they bring up the question of the value of fluoroscopic examinations of the gastrointestinal tract when done by the general practitioner who possesses an *x*-ray machine but who has had little special roentgenological training. It is a commonplace to state that every patient who is being subjected to the expense of *x*-ray examination is entitled to have the work done by a competent roentgenologist. Of course, to do a routine gastrointestinal *x*-ray study of all cases in the cancer age would mean a tremendous expenditure of time and money, and it is questionable whether it would be justified. In our hospital it is a routine procedure that all cases on the Medical Service and in the Dispensary have at least two stool samples studied especially for blood, pus and mucus. Whether there is gross blood present or not, a sample from the inside of the stool is examined for occult blood and if such is present the assumption that it comes from high up in the gastrointestinal tract often proves correct. This simple procedure is an inexpensive check that might be correctly used as an indication for complete gastrointestinal study. In the last month in our hospital two cases of carcinoma of the stomach were discovered in this way.

Many private surgeons as well as hospitals have reported cures in carcinomas of the stomach of from five to ten years duration. Dr. Arnold Schwwyzer of St. Paul has a unique series rang-

ing from eight to twenty-four years of freedom from recurrence after removal of the cancer. He has in his experience six instances of cures lasting more than eight years. Three of them have been definitely proven to have had carcinoma. In the others the specimens have been lost.

Mr. B. was operated on by Dr. Schwwyzer,⁴ September, 1915. A large carcinoma involving two-thirds of the lesser curvature and one-half of the posterior wall was found. It was adherent to the liver. A large piece of the liver was removed with the mass. Microscopic examination revealed an adenocarcinoma. This patient is today living and well.

Many of his patients have had a gastrointestinal history lasting from three to five years before any operation was attempted, and it is surprising how many of them were favorable for resection. This is illustrated by the case of Mr. B., sixty-six years of age, who was operated on in April, 1915. His symptoms dated back three years and for one year he had severe pain, nausea and vomiting with a marked loss of weight. A radical resection of the stomach was made and the patient is still living at the age of 80. Dr. Schwwyzer also has a patient that he operated on in 1905 and the specimen is in the Museum of the Department of Pathology, University of Minnesota. A partial gastric resection was done for a large carcinoma. At the time of the operation he was sixty years of age. He died last fall at the age of eighty-four. In other words he enjoyed twenty-four years of life that he could not have had if he had not been operated upon by an aggressive surgeon. Other cases are reported in literature similar to the above mentioned; enough to encourage us in our aggressive stand.

In the statistical approach to the study of carcinoma of the stomach one must not lose sight of the fact that although it gives some definite information concerning what has been done in the past with carcinoma of the stomach, it is evident that it tells nothing concerning what can be done. Statistical studies are important, but we must be careful concerning the interpretation of the results. It appears from this type of study as though the carcinomas were on the increase, but when one considers that more people are living to the cancer age, one has to defer the interpretation of the apparent increase and at present it is permissible to doubt that any real increase has taken place.

When one studies the favorable cases reported in the literature one is impressed with the fact that they are not the results of chance diagnoses, I mean not picked up without symptoms in the course of routine examination. In the majority of cases the diagnosis was due to thorough, persistent diagnostic work by those in charge. Most of the cases had symptoms referable to the gastrointestinal tract and through proper study and interpretation the right diagnosis was reached. Hence, the correct treatment was instigated. Of course in some cases metastases occur early. That is, there is an early breakdown in the lymph node barrier but there is the question whether these cases are not in the minority. Most of our cases that prove inoperable are so because of local infiltration into the surrounding tissues. If this is correct, it gives encouragement, for in this type timely diagnostic work should lead to decrease in mortality. This reminds me of a case referred to the University Hospital from a town not so far from the Mayo Clinic. I say this to show how close the doctor was to competent roentgenologists and yet he did not use them. The patient was a prominent man of forty-eight years of age who wanted good service. He went to the local doctor complaining of belching gas, food idiosyncrasies and distress in the upper part of his abdomen. The doctor treated him for ten months with a bland diet and powders. An examination of his stools was not made nor was the patient subjected to an *x*-ray examination, although he was close to one of the greatest medical centers in the world. At the end of ten months the patient became dissatisfied and came to the University Hospital, where a subsequent examination showed an inoperable

carcinoma; inoperable, not because of metastasis in other parts of the body, but because of the extension and infiltration of the tumor into the surrounding tissues. If the unfavorable statistics reported are made up of many cases of this type there is a chance for a marked improvement. As the result of the propaganda which is being spread over the country educating the laity to go to the doctor early, the burden of the early diagnosis is being shifted to the medical profession. It is imperative that we take up the challenge so that the statistics in the future will not indict us for not having done our part.

In summarizing I might state that an attitude of pessimism has been associated with carcinoma of the stomach to an extent which, I believe, is detrimental. More emphasis should be placed on stool examinations. All patients in the cancer age that have gastric symptoms warrant a fluoroscopic and *x*-ray examination. An exploratory operation is indicated when a malignancy of the stomach is suggested and it is not complete until the stomach itself has been opened and palpated from the inside. A large carcinoma of the stomach is not necessarily inoperable; in fact some of the largest carcinomas have given the best results from operation. Sufficient instances of cure of carcinoma of the stomach over three, five, ten and even twenty year periods are found in the literature to justify a more optimistic attitude.

BIBLIOGRAPHY

1. Bell, E. T.: Personal communication.
2. Rigler, Leo: Personal communication.
3. Sagel, J.: To be published.
4. Schwyzer, A.: Clinic on Surgery of the Stomach. Minnesota Medicine, 1927: X, 77.

AMBROSE PARÉ—MILITARY SURGEON

HAROLD EDWIN HULLSIEK, M.D., F.A.C.S.
Saint Paul

"TREPAN the King!" cried the doctors with horror.

"And what is the nature of this operation?" asked the Duke de Guise.

"It is little known, monseigneur," said the surgeon. "It is an operation with an instrument invented by myself, and which I call a trepan, making on the top of head, or rather on the lateral part of the brain, an opening the width of an angelot."

"God of mercy!" cried Catherine de Medici indignantly, "Pierce the king's head! And you would have done it!"

"Yes, madame," replied Ambroise, simply.

Although the above lines of Dumas are taken from what is probably a purely imaginative account of the fatal illness of Francois II, it presents a very complete picture of Ambrose Paré, his professional and social contacts, scientific attainments, and his simple and unswerving adherence to the dictates of his medical conscience in a crisis. All about him ran rampant intrigue, plots, wickedness, lust for power, superstition, with poisonings, assassinations, and loss of heads commonplace events, yet anyone familiar with the character of the great Paré would know that in the face of so desperate a situation he would hew straight to the line, and if the king needed to be trephined, trephined he would be.

Born in Bourg Hersent, now part of the city of Laval, in the province of Maine about the year 1510, little did the cabinetmaker's son know, when he was first put out to board with the cleric, that he was to occupy an honored position as physician and friend to the royalty of France during one of the most glamorous periods in her history. Beginning his medical career in the early part of that century during which his country was to experience some of her most terrible days: civil, religious, and foreign wars; political and religious persecution; wicked extravagance and wanton waste; stark poverty, misery, and suffering; with the Field of The Cloth of Gold as one extreme and the salt tax as the other; he was destined to be confidant and medical adviser to many of the principals in the great drama.

Catherine de Medici, licentious, bigoted, crafty, the instigator of the Massacre of Saint Bartholomew; the terrible woman's three degenerate sons, Francois II, husband of Mary Queen of Scots, Charles II, weakling, under whose reign the wholesale slaughter of the Huguenots took place, and Henry II, who caused the murder of the Duke de Guise and his brother, the cardinal; Margaret of Angouleme, Queen of Navarre—the marrying and murdering daughter of the King of Scotland and Mary of Guise, whose schemes finally lost her her head; Diana de Poitiers, fascinating mistress of Henry II; Henry III, the thirteenth and last Valois king, whose family ruled for two hundred and sixty-one years; Admiral Coligny, the celebrated naval general and Huguenot leader; Rabelais, monk, doctor and humorist, whose ribald pen wreaked havoc with the evils of the time; Montaigne, the philosopher; Montmorency, the soldier; the entire family of Guises; and a host of others. What a calling list! What a practice! The fact that he continued to act in as confidential a capacity as that of physician to such a host until his eightieth year is the best testimonial as to his courage, sagacity, honesty, and technical skill that one could wish for.

Paré is known as the father of modern surgery, and since much of his wisdom and experience was gained through his duties with the armies on the various campaigns, he was essentially a military surgeon. As a boy, he was sent to live with an ecclesiastical gentleman for the purpose of learning Latin. Whether or not this was done with the idea of a medical career in mind we do not know, but at any rate, he acquired no knowledge of Latin, the pious one keeping him busy with other tasks than those leading to a classical education. Soon we find him apprenticed to a barber-surgeon, who taught him bleeding, cupping, leeching, and such other duties of his calling that he deemed essential. The barber-surgeon, Laval, was unable to teach him the Latin so necessary to the surgeon of the day, and this failing, which he never corrected, was to bring upon him much adverse criticism and ridicule

by his confreres in later years. He remained for some time with this master, and then, through what influence is not known, became a *compagnon chirurgien*, a sort of interne or resident physician at the Hotel Dieu. This was the only public hospital in Paris, having been founded in the seventh century, and although under the management of the Canon of Notre Dame at the time of his stay there, became the battle ground for the then frequent altercations among the various classes of the medical profession.

In France during the early part of the sixteenth century the practitioners of medicine were divided into three groups: the physicians, the surgeons, and the barber-surgeons. The first class belonged to the Faculte de Medicine, and exercised an autocratic supervision over all who practiced the art; the surgeons, members of the Confrerie de Saint Come, wore long robes, and deigned to treat surgical conditions by means of ointments, plasters, and cauterizing agents only, and would not stoop to perform operations; the barber-surgeons did venesection and cupping. Each group encroached on the fields of the other groups, all were jealous, and the rowing and bickering was furious and continuous.

An old work enumerates the following table of the practitioners of medicine, possibly a short time later than the early sixteen hundreds, and probably including Germany as well as France, but for the purpose of illustration, gives a good picture of the chaos that existed at the time.

I. Medical practitioners proper.

- a. Medici in general, commissioned, court, field, hospital, and plague medici.
- b. Surgeons, barbers, regimental surgeons, oculists, herniotomists, lithotomists, bath-keepers.
- c. Superior sworn midwives, ordinary midwives, inferior midwives, nurses.

II. Sundry impostors and pretended physicians.

Old Women, village priests, hermits, quacks, uroscopists, Pseudo-Paracelcists, pyrotechnists, Jews, calf-doctors (emetic-peddlers), executioners, crystal romancers, mountebanks, vagrants, magicians, exorcists, monsters,

wood-hermits, rat-catchers, bankrupts, jugglers, gipsies, professors, veterinary physicians, and (*sic*) etc.

After three or four years at the Hotel Dieu, a period concerning which we have meager information, he left, and about the year 1536, began his military career as a surgeon with troops. At this time Anne de Montmorency led the French army away on a campaign in which they followed the retreating forces of Charles V across the Alps, finally ending up in Turin, where a considerable time was passed. Paré acted as surgeon to Mareschal de Montjan, a position he held for two years until the death of his chief, when he returned to Paris. During this campaign his duties were many and arduous. If the army surgeon of today imagines that his task is a difficult one, let him glance at the order given the field surgeon of Paré's time. In addition to superstition, ignorance, sorcery, Black Magic, etc., he had to contend with a dismal lack of knowledge of anatomy, physiology, and pathology as we know them today. Wounds almost invariably became horribly infected with the result that amputations were universally done in cases where today such a procedure would be entirely unnecessary. The following is a short list of the ordinance used to keep the surgeon busy. "There we found," says Ambroise, in his "Apology and Treatise," "everyone in arms, tocsin sounding from all sides, yea, for five or six leagues about the harbors, to wit, Brest, Couquet, Crozon, le Fou, Doulac, Laudenac, each well-furnished with artillery such as cannon, demi-cannon, bastards, posse-volants, field-pieces, culverines, serpentines, basilisks, sakers, falcons, falconneaux, flutes, orgues, arquebuses a croc, . . ." Add to this imposing arsenal such toys as halberds, pikes, axes, javelins, swords, daggers, clubs, bars of iron, chains, grenades, lances, torches, fusees, melted lead, and quick-lime (to put out eyes) and it is small wonder that the good Paré frequently had his ingenuity tested to the point of entirely novel therapeutic measures.

It was in this his first campaign that he cast aside the time-honored custom of cauterizing wounds made with firearms. According to tradition and because gunpowder wounds "participate of venomosity" they must be treated with boiling oil, notwithstanding the

attendant pain and bitter objections on the part of the patients. So great was the carnage in the battle about the Chateau de Villane that the supplies of the young surgeon became exhausted and he presently found himself with many wounds still to be treated and no oil remaining. Necessity mothering invention, he conceived a dressing of egg-yolk, oil of roses, and turpentine. During the night he became so worried concerning the wounds he had dressed in so radical a manner that sleep was impossible, and after tossing about all night, he arose at dawn to inspect his wounded. He was overjoyed to discover that those which had been treated with the new ointment were quite comfortable, while the wounds of those burned with the hot oil were feverish and swollen, and the unfortunate victims writhing and groaning in pain. "Then," he writes, "I resolved with myself never more to burn thus cruelly men wounded with gunshot."

Although humble enough at times (one of his favorite expressions being "*Je le pansai, Dieu le guéri!*") he is Cellini-like enough at others. In apology for the latter characteristic it might be suggested, however, that with the jealousies and obstructions he was forced to combat among his confreres, a shrinking nature most certainly would have got him nowhere. He remarks of the soldiers fighting among themselves and modestly says, "If there were four wounded I always had three of them, and if it was a question of cutting off an arm or a leg, or to trepan, or to reduce a fracture or a dislocation, I brought it well to an end." In consultation, if there was any serious piece of surgery to do, he was always the one chosen to do it, and he always did it "promptly and dextrously, and with great assurance," so that the other surgeons wondered at such skill in one so young.

As has been said, parts were lopped off ruthlessly, and by no means always unnecessarily, since the prevalence of infection in traumatized wounds often meant a fatal termination, whereas a more or less cleanly made amputation gave the patient at least an even chance. Tradition dictated that all amputation wounds be seared with white-hot irons, and a set of cauteries were a regular part of the military surgeon's armamentarium. Paré had for some

time been mulling over the idea of supplanting the cautery with the ligature as a means of controlling hemorrhage after amputations. In fact he had discussed it some time earlier with two confreres who agreed that it might be safely attempted. In 1552 he amputated an officers' leg, and instead of using the hot irons to close the great vessels, he tied them securely with ligatures. He writes about his patient, "He returned home gaily with a wooden leg, saying that he had got off cheaply without being miserably burned to stop the bleeding." This innovation was to bring about countless arguments and objections from the conservatives, and it was years before the practice became generally accepted.

In 1554, at the age of forty-four, he was made a member of the College of Saint Come, and being no longer a barber-surgeon, was allowed to wear the long robe which was the surgeon's distinguishing mark. It was no secret that he was ignorant of Latin. In fact he voiced loud defies to the effect that the French tongue was good enough for anybody to speak or write. His inability to use the language of the surgeons was more than offset by his now recognized technical ability and experience, and also, what was by no means a trivial consideration, his influence with the nobility, so that it was considered expedient to admit him by means of an examination in Latin that even he could pass. After having spent the better part of fifteen years campaigning, he now set himself to work studying anatomy and rewriting one of his books, in which manner he passed the ensuing three or four years.

In 1559 he was saddened by the death of his king and friend, Henry II, also dramatically and incidentally incorrectly described by Dumas. The king, riding in a tournament and wearing the colors of the beautiful Madame de Poitiers was laid low by a blow over the right eye with a lance in the hands of Gabriel de Montgomery. Although Dumas has it that Paré was at Peronne and was not called to attend his majesty, it is a fact that both he and Vesalius were among the surgeons who were with him in his last days. Though numerous consultations were held, the splinters of the lance could not be located, even after the surgeons experimented with the heads of

four recently beheaded criminals, driving lances into the skulls in an effort to determine the direction taken by the fragments. The king died on the eleventh day and in his works Paré describes very accurately the postmortem findings in the royal brain.

Throughout his long lifetime he was constantly observant and always eager to avail himself of every opportunity to utilize a new idea in his art. He relentlessly pursued another surgeon who was purported to have a formula for a very excellent ointment to be used as a wound dressing. It was only after two years of pestering that he finally persuaded the other to relinquish his secret, and when Paré did obtain the prescription, it was found to contain several ingredients, among which was boiled new-born puppies. To his credit is the improvement in the technic of amputations, and the use of the ligature as a substitute for the cautery. His ointment for gunshot wounds instead of boiling oil was one of the first steps in the rational treatment of those injuries. Malgaigne believes him to be the first to make mention of metastatic abscesses in the various organs following wound infection. He popularized the truss for hernia, and made the first disarticulation of the elbow-joint. In obstetrics he described podalic version, and induced labor in cases of uterine hemorrhage; he devised various appliances and procedures improving the practice of dentistry. An operation for cataract is given, but his link with the past is shown by the statement that it should only be performed at the waning of the moon. He was responsible for many advances in the art of medicine, swept away many superstitions, and popularized many valuable procedures.

His treatise on the mummy and the unicorn is an indication of the popular state of mind. Mummy was a resinous substance supposed to

be obtained only from Egyptian mummies. Unicorns horn was extremely costly since it was considered an absolute preventative against poisoning, a piece of it dipped into any decoction rendering the drink harmless. Genuine unicorns horn commanded a fabulous price. Paré cast a bombshell into the camps of the entire medical fraternity when he declared that there was no proof that such an animal as an unicorn ever existed, and if such did, the horn was of no value.

His works include among others a treatise on gunshot wounds published in 1545; a work on podalic version in 1550; Wounds of the Head, and *Anatomie Universelle* in 1561; and a treatise on surgery published in 1564. Following epidemics he wrote in 1568 a set of works on plague, small-pox, and measles, and in 1573 in addition to two more works on surgery, his famous book dealing with "Monsters, Terrestrial and Marine." In 1582 came the death blow to the charm-merchants in his work on mummy and unicorn's horn.

Francis Packard speaks of Paré as "one whose fame as a human benefactor will last until the race is no more, who from the humblest origin rose to high station solely as the result of his own genius . . . his kindly, genial nature, coupled with his good sense . . . a Frenchman writing scientific works with logical inciseness and art . . . his benevolence and charity to common soldiers. L'Estoile writes of him, "Thursday, twentieth of December, 1590, the Eve of Saint Thomas, died at Paris, in his own house, Master Ambroise Paré, surgeon to the king, aged eighty years, a learned man and the chief of his art; who, in spite of the times, had always talked and talked freely for peace and for the good of the people, that which made him as much loved by the good as he was wished evil and hated by the wicked."

HYPERTHYROIDISM*
A REVIEW OF 270 HOSPITAL RECORDS

EVELYN GRUHLKE McLANE, A.B., M.D.†
Sleepy Eye, Minnesota

BETWEEN the dates of January 1, 1924, and January 1, 1930, 270 cases of hyperthyroidism were treated in the New Asbury Hospital, Minneapolis. Of this number 224 were treated surgically: 213 by thyroidectomy; 10 by ligations without subsequent thyroidectomies in this hospital; 1 by drainage of an abscess involving an adenoma.

Sex.—There was a marked predominance of females (83 per cent) over the males (17 per cent).

Age.—The ages of the males ranged from 18 to 64. Those of the females ranged from 11 to 93. The four oldest were 93, 72, 70 and 70. Fifty-three per cent of females were between 20 and 40 years. The following is a table of age distribution:

Age	Per		Per	
	Male	Cent	Female	Cent
11-20.....	3	6	4	2
20-30.....	10	23	60	27
31-40.....	16	35	58	26
41-50.....	4	8	35	16
51-60.....	11	24	46	20
61-70.....	2	4	19	8
71-93.....	0	...	2	1

The average age of the females was 39.4 years; of the males, 38.8 years.

Symptoms.—The following is a survey of the frequency of subjective symptoms. The most constant symptoms were: nervousness, palpitation, and loss of weight. It is to be noted that a tumor mass or enlargement of the neck was complained of in only one-third of the cases, but was palpable in 75 per cent.

	Per Cent
Nervousness	81
Palpitation	75
Loss of weight.....	48
Fatigue and weakness.....	27
Excessive perspiration.....	21
Tremor or unsteadiness.....	16

*Presented May 1, 1930, before the Minneapolis Surgical Society by invitation after having been granted second prize in the Surgical Society Essay Contest.

†Formerly interne at the New Asbury Hospital, Minneapolis.

Increased appetite.....	15
Dyspnea	14
Abdominal cramps	12
Choking sensations.....	8
Edema of feet and ankles.....	7
Cough	6
Sensations of heat waves.....	6
Decreased appetite	5
Nausea, with or without emesis.....	5
Diarrhea, periodic.....	5
Decreased menstrual flow.....	3
Insomnia	3
Mania	2
Epistaxis	2
Generalized pruritis	2
Headaches	2

Other complaints appearing only once were: backache, swollen lids, dizziness, diplopia.

Physical Findings.—Order of frequency of physical findings was as follows:

	Per Cent
Palpable enlargement of thyroid.....	75
Tremors	70
Heart murmur.....	35
Exophthalmos	28
Lid lag	13
Nystagmus	10
Increased reflexes.....	10

Pulse pressure was generally high. The diastolic readings remained about normal, while the systolic were consistently higher than the usual findings. The average systolic blood pressure on entrance was 146, and the average diastolic was 76, giving an average pulse pressure of 70. The highest blood pressure, both in systolic and diastolic was 214/110 in a female of sixty years. In no case was the systolic reading below 100.

The average body weight among the males was 140 pounds, and among the females 122 pounds. The lowest weight of the males was 115 pounds, and of the females was 70, the latter in a woman of 37 years. The highest weight of this group of patients was 215 pounds in a female. Twelve per cent of the females were below 100 pounds.

Pre-Operative Treatment.—In reviewing the

pre-operative treatment of these cases six (2.5 per cent) were found to have had previous operative procedures for hyperthyroidism; five had had thyroidectomies one to four years previously; one had had a ligation fifteen years before.

The medical preparation for surgery was limited to the use of only a few forms of medication:

Eighty-five per cent were given Lugol's solution—10-20 m. t.i.d.

Twenty-three per cent were given Luminal—grs. 1 to 1.5 in the evening.

Twenty per cent were given bromides, usually as triple bromides, and in dosage of grs. 15, t.i.d. or q.i.d.

Thirteen per cent were given some form of digitalis.

Bed rest was given to all those prepared in the hospital and to many who were prepared in the home. The average time for pre-operative preparation was two to three weeks. Some few cases received no formal preparation, but I noted that in nearly all of this group the symptoms were not intense, and also observed that where studies were made by the pathologist that the report was usually adenoma.

In preparation of those patients with the very highest basal metabolic readings, the following combination of rest and medication for two to three weeks seemed to be the most common:

Lugol's t.i.d.

Luminal in the evening

Triple Bromides t.i.d.

Bed Rest.

One patient was given the Crile method preceding a double ligation.

Basal Metabolic Rates.—The highest reading of this series was so high that the patient was in the hospital and under the above treatment for one week before it was low enough to be registered on the graph, and then it was 128 (plus). No later record was available, but a thyroidectomy was accomplished and the patient made a good recovery.

The next highest rate was plus 98. This was reduced to a plus 45 in three weeks of this treatment. The two next highest were plus 95 each, one being reduced to plus 42 in three weeks and the other to a plus 45 in two and one-half weeks. Another of plus 93 was reduced to plus 55 in two and one-half weeks, without the bromides.

Examples of less extreme readings are:

Rate of plus 66 reduced to plus 22 in two weeks;

Rate of plus 44 reduced to plus 19 in two weeks, no bromides;

Rate of plus 50 reduced to plus 19 in two and one-half weeks, no bromides;

Rate of plus 39 reduced to plus 12 in two weeks, no bromides or luminal.

Many charts had as high as four basal metabolic readings during the pre-operative records. Some charts had only one basal reading, and a few had none, but these latter comprised a small enough group so as not to interfere with averages.

Seventy-five per cent of the basal metabolic rates went down under this treatment.

Twenty-five per cent either increased slightly or did not change.

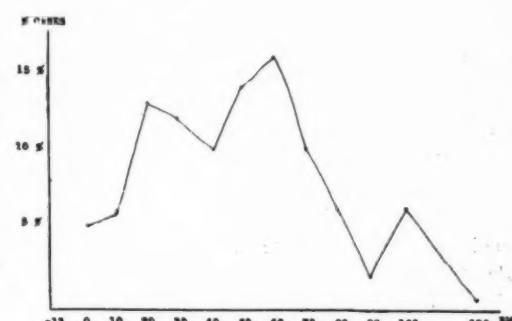


Figure 1.

Figure 1 is a graph of the distribution of the basal rates. The lowest was a minus 13, but this and other cases of minus rates were showing clinical symptoms of hyperthyroidism.

Post-Operative Treatment.—Post-operative treatment was very similar in type to the pre-operative:

Seventy-three per cent received Lugol's; 15 per cent were given luminal; 12 per cent were given some form of digitalis.

Otherwise the care was as is found in any group of post-operative cases. Glucose by rectum was given frequently. Patients remained in sitting posture three to five days. The treatment, postoperative, could not be traced for longer than the hospital stay, so cannot be reviewed completely. Most of the uncomplicated cases remained in the hospital seven to ten days following operation.

Complications.—The complications may be divided into a very few groups. About 9 per cent of the patients had cardiac complications following operation. Fibrillation was most common and in some cases there was no other finding than an exaggerated tachycardia, causing the patient fear and discomfort. The next most frequent group of complications was respiratory infections. Bronchitis was the most frequent, coryza next, and one case was recorded as broncho-pneumonia. These respiratory infections occurred in 5 per cent of the cases, one-fourth following local anesthesia, and three-fourths after general anesthesia. An infected wound was present in 3 per cent of the cases. In two instances the patient had been under treatment for diabetes for some time preceding thyroidectomy. No ill effects were noted after operation that could be attributed to the diabetes, these patients being under careful insulin management continuously by experts in care of diabetes.

Anesthesia.—The following is a calculation of the frequency of the use of the various anesthetics: 27 per cent novocaine plus nitrous oxide; 29 per cent nitrous oxide, or nitrous oxide plus ether; 44 per cent novocaine.

Post-Operative Condition.—No post-operative check on the condition of the patients could be made later than the date of leaving the hospital. Basal rates taken after operation were not available. However, the condition of the pulse and respiratory rates at the time of discharge from the hospital were as follows:

Seventy-four per cent showed moderate to marked lowering of pulse and respiratory rates; 19 per cent showed little change; 7 per cent showed a slight increase; none were marked.

The general condition of all seemed improved with the exception of two cases.

Pathology.—Studies and reports, either gross or microscopic, or both, were made by the pathologist in 74 per cent of thyroidectomy cases. Only one record of malignancy was found and this was reported to be open to question.

Personnel.—The work on this group of cases was done by sixty-one physicians, both medical and surgical. Of the operated cases, one-half was done by nine members of the staff, and the other half was divided among forty members.

Mortality.—Out of the 224 operative cases there were five deaths, a post-operative mortality rate of 2.3 per cent. In addition, two patients

died without thyroid surgery. One who had marked hyperthyroid symptoms died following a cholecystostomy. The other entered the hospital in a toxic state and died the same day, autopsy showing cirrhosis of the liver and adenoma of the thyroid. Of the thyroid post-operative deaths, one was a male and four were females.

A brief review of the five fatal cases follows:

Case 1.—Female, age not given, weight 95 pounds. Symptoms—Extreme nervousness for one year; palpitation and nausea, 3 months; very poor appetite.

Physical Findings—Lid lag, small mass in neck, tremor, tachycardia (108), poor tissue turgor. No. B.M.R. record.

Pre-operative Treatment—Digifolin, Lugol's (uncertain time).

Operation—Thyroidectomy.

Post-operative Treatment—Digifolin, Lugol's, intravenous saline, proctoclysis.

Complication—Auricular fibrillation. Death fifth post-operative day. No autopsy.

Case 2.—Female, aged 38, weight 215 pounds.

Symptoms—Nervousness, insomnia, weakness, excessive perspiration, and extremely active appetite for one year. Palpitation for five years. Palpitation started when patient took thyroid to reduce.

Physical Findings—Small mass in neck, tremor, obesity. Blood pressure 160/90. B.M.R. plus 43 on entrance, and after two weeks' treatment plus 25.

Pre-operative Treatment—Lugol's m X t.i.d., luminal at night.

Operation—Thyroidectomy.

Complication—Died within few hours after operation; extreme tachycardia, shock, hemorrhage into wound, and collapse of trachea. No autopsy.

Case 3.—Female, age 31.

Symptoms—Palpitation, loss of weight, visual disturbances, markedly increased appetite, and edema of the feet and ankles.

Physical Findings—Exophthalmos, lid lag, nervousness, B.M.R. plus 20.

Pre-operative Treatment—Lugol's m X t.i.d., luminal at night, triple bromides t.i.d. Eight days' preparation.

Operation—Thyroidectomy started, but just as muscles were separated and the right upper pole grasped, the patient breathed strangely and died.

Autopsy—Air embolism (massive collapse of the lungs secondary to artificial respiration).

Case 4.—Female, age 42.

Symptoms—Dyspnea for four months, palpitation and nervousness for three months, vomiting for one week, with loss of weight.

Physical Findings—Mass in neck, exophthalmos. B.M.R. plus 77.

Pre-operative Treatment—Patient had taken Lugol's continuously for six weeks before entrance to hospital. After entering she was treated with bed rest, triple bromides, morphine sulphate, and hyoscine for seventeen days. Patient became steadily worse, and was

nally taken to operating room in semi-conscious condition.

Operation—Double ligation.

Complication—Died first day in apparent collapse. No autopsy. Toxic myocardium.

Case 5.—Male, age 64, weight 125 pounds.

Symptoms—Nervousness, palpitation, increased appetite two years.

Physical Findings—Exophthalmos, mass in neck, B.M.R. plus 41, and after two weeks' treatment increased to 52.

Pre-operative Treatment—Lugol's, luminal.

Operation—Thyroidectomy.

Complication—Died first day in shock. No autopsy.

SUMMARY

In reviewing this series of 270 hyperthyroid

cases, treated in a private hospital by 60 members of the staff, it was found that 75 per cent responded by reduction of basal metabolic rate, to a treatment consisting chiefly of Lugol's solution, luminal at night, and triple bromides, this being given over a period of two to three weeks. Females predominated very markedly in number, individual weights were somewhat low, and systolic blood pressure somewhat high.

A remarkable standardization of treatment is shown with excellent results. The mortality under surgical treatment of 2.3 per cent under the conditions described in this paper, demonstrates the progress made in the treatment of this once dreaded disease.

DESICCATED OVARIAN PREPARATIONS FOR ORAL ADMINISTRATION OMITTED FROM N. N. R.

The Council on Pharmacy and Chemistry reports that, believing that the available evidence fails to prove the therapeutic value of desiccated ovarian preparations composed of all or a part of the ovary for administration by mouth, it decided to omit all such preparations with the close of 1929 unless new evidence should meanwhile develop making other action justifiable. No acceptable evidence for the value of desiccated ovarian preparations for oral administration having become available, the Council confirmed its decision and omitted all desiccated ovary preparations for oral administration from New and Non-official Remedies, 1930. (Jour. A. M. A., June 21, 1930, p. 1997.)

GOLD SODIUM THIOSULPHATE IN LUPUS ERYTHEMATOSUS

Gold salts have provided an effective method of treating lupus erythematosus. The treatment usually definitely improves the condition and often gets entirely rid of it. Gold sodium thiosulphate is the salt generally used in the United States. The initial dose is 10 mg. dissolved in 2 c.c. of sterile distilled water, given intravenously. If this is well tolerated, the second dose is 25 mg. given from five to seven days later. After this the dose is repeated at weekly intervals. Doses up to 50 mg. may be administered and they have been as satisfactory as doses of 100 mg. Occasionally severe reactions result from the use of the drug. The drug should not be pushed when symptoms occur from it. (Jour. A. M. A., May 24, 1930, p. 1715.)

PRESIDENT'S LETTER

For reasons not difficult to understand, expert medical testimony as adduced in our courts is looked upon with considerable contempt by the laity, and with a feeling of exasperation by the medical profession. The legal profession appears to be quite complacent in regard to it, evidently considering the present methods of its application quite suitable to their needs.

Regardless of how medical testimony may be considered in general, the phase dealing with crime and insanity in particular appears to have aroused the greatest criticism on the part of the public and of the medical profession.

The Committee on Medico-Legal Affairs of the State Association made a careful study of this subject during the past year. An excerpt from its report to the House of Delegates follows:

"It has been the belief of the Committee on Medico-Legal Affairs that the time is ripe in the state of Minnesota for some constructive legislation along the lines of expert testimony, particularly with reference to the mental status of criminals being brought to trial. It has been felt desirable to have the initiation of such legislation as in the state of Massachusetts, whereby the matter of the sanity of criminals is not brought before a jury for decision, but is determined by a commission or board appointed for that purpose, and that the matter of the sanity of the criminal should never be left to a lay jury to determine. In view of the fact that this involves an amendment to the constitution of the state of Minnesota, it is impossible to make any rapid progress in the enactment of such legislation. It is felt by this committee that such legislation should primarily be enacted through the legal profession, with the moral support of the medical profession of the state."

Whether or not the legal profession will become actively interested in such constructive legislation cannot be stated at the present time. In our opinion it is a duty incumbent upon them. The dictates of reason would suggest that no technical question should be decided by a lay jury.

The purpose of courts of justice is to learn and establish the truth. Judges and attorneys at the bar are, after all, merely instruments of legal interpretation and procedure, just as we of the medical profession are but instruments of healing. They are not expected to possess more than general knowledge on subjects outside of their special field of activity. The work of lawyers consists, in part at least, in gathering supposedly reliable information for presentation in court. Therein rests the reason for the expert witness. The latter is presumably accurately and scientifically informed in his particular field of training, whatever it may be. He is therefore called upon for the purpose of *enlightening the court* in regard to matters concerning which he has special knowledge and for the purpose of expressing an opinion based upon such knowledge.

Such being the fact it would seem that medical witnesses themselves could do a great deal toward improving the status of the medical expert. The spirit of scientific accuracy with its totally impersonal attitude should be cultivated. There are increasing instances in which the doctors called upon opposite sides of trial cases quietly get together and freely discuss the medical phases entering into such cases. Their attitude toward each other is one of candor and confidence. Their attitude toward the case in court becomes impersonal and unbiased. Their discussion is scientific and analytical. Such expert medical witnesses are interested not at all in one side or the other. They care not an iota which lawyer wins. They are vitally interested in arriving at a common and rational conclusion. Having reached a reasonable understanding they are prepared to appear on the witness stand and submit information and opinions which are truthful and not in conflict. As the purpose of such *ex cathedra* discussions is to advance honesty and truth it is impossible to see wherein any court could offer objection. Conceivably opposing counsel might not be so favorably disposed.

Manifestly the success of such conferences depends upon the complete trust and confidence of the conferees in each other. Happily, as the medical profession advances in knowledge, widens its field of contacts and takes on an increasingly broader outlook upon life, its members develop a greater respect for each other's attainments and integrity.



President,
Minnesota State Medical Association.

EDITORIAL

MINNESOTA MEDICINE

Official Journal Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine, and Minneapolis Surgical Society.

Owned and Published by
The Minnesota State Medical Association
Under the Direction of Its

EDITING AND PUBLISHING COMMITTEE

J. T. CHRISTISON, M.D.	St. Paul
E. L. GARDNER, M.D.	Minneapolis
JOHN M. ARMSTRONG, M.D.	St. Paul
A. S. HAMILTON, M.D.	Minneapolis
D. C. BALFOUR, M.D.	Rochester
R. E. FARR, M.D.	Minneapolis

CARL B. DRAKE, M.D., St. Paul.	Editor
Lewis M. Daniel, M.D., Minneapolis	Assistant Editor

A. B. Stewart, M.D., Owatonna	First District
F. M. Manson, M.D., Worthington	Second District
Geo. B. Weiser, M.D., New Ulm	Third District
H. B. Aitkens, M.D., LeSueur Center	Fourth District
F. U. Davis, M.D., Faribault	Fifth District
Paul Kenyon, M.D., Wadena	Seventh District
O. E. Locken, M.D., Crookston	Eighth District
E. L. Tuohy, M.D., Duluth	Ninth District

J. R. BRUCE, Business Manager
2429 University Avenue, Saint Paul, Minnesota
Telephone: Nestor 1381

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal itself, not to individuals.

The right is reserved to reject material submitted for either editorial or advertising columns. The Editing and Publishing Committee does not hold itself responsible for views expressed either in editorials or other articles when signed by the author.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

The rate for classified advertising is five cents per word with a minimum charge of \$1.00 for each insertion. Remittance should accompany order. Display advertising rates will be furnished on request.

Contents of this publication protected by copyright.

Subscription Price: \$3.00 per annum in advance. Single Copies 25c. Foreign Countries \$3.50 per annum.

Vol. XIII September, 1930 No. 9

BOEHLER'S METHOD OF TREATMENT OF FRACTURES

At the meeting of the Minnesota State Medical Association, in Duluth, Dr. Lorenz Boehler, of Vienna, gave a presentation of his treatment of fractures as conducted at his clinic. The large attendance at his lecture was evidence of the general practitioner's desire for more information on the subject. Owing to the fact that machinery, with all its hazards, is used on the farms so much more than formerly, and that modern highways, with rapid transportation, increase hazards, the staffs of hospitals in rural communities are called on to treat increas-

ing numbers of types of fractures that formerly were seen chiefly in the industrial centers.

The establishment of Doctor Boehler's fracture clinic was brought about through his conviction that fractures demand special treatment and, therefore, that carefully planned and selected equipment is essential. By emphasizing the economic importance of the patient with a fracture he was able to induce certain insurance companies to establish the clinic solely for the treatment of fractures.

Because Doctor Boehler's methods are ingenious and unusual, the underlying principles may not be generally grasped. Traction is the keynote of his treatment, and is made possible by inserting rustless steel pins through the fragments and thus providing skeletal traction. The fracture is reduced, and while the position of the fragments is maintained, a split plaster-of-Paris cast is applied and the pins are locked in its substance. Elevation of the part prevents subsequent swelling, which, if allowed to occur, would necessitate removal of the cast and loss of position. Local anesthesia simplifies reduction in certain types of fracture, and early use of the part prevents the necessity of a prolonged course of treatment with physical therapy, after union is obtained.

Briefly, Doctor Boehler's method consists of reduction by skeletal traction, elevation of the extremity to prevent swelling, and early motion of the parts involved.

M. S. H.

COOPERATION WITH THE PURPLE CROSS

It may or may not be appropriate that entrance to this world should be certified by the physician and exodus by the undertaker. It is not generally known, however, that according to the law in this state the undertaker is required to furnish a death certificate filled out and signed by the last physician in attendance, before a burial permit is allowed. This law went into effect several years ago and there might be room for argument whether the entire responsibility for certification should in justice be placed on

the undertaker. The law being as it is, there is every reason why the physician should cooperate in every way in filling out his part of the certificate. We are informed that 95 per cent of physicians promptly do their part. There are, of course, exceptions. One physician, we are informed, refused to be bothered because it was Sunday. This necessitated a second trip on the part of the undertaker, and, of course, caused inconvenience and hard feeling. It is almost inconceivable that any physician should have taken such an attitude.

The Purple Cross is the insignia adopted at the time of the World War by the funeral directors of the country, more commonly known as undertakers. Various localities, including Minneapolis and Saint Paul, have a Purple Cross Club composed of the local funeral directors.

The attention of officials of the State Medical Association has been called to this joint obligation of undertaker and physician, with the idea that better understanding will result. Both professions serve the public and it is in the interests of better service that attention is called to the need for 100 per cent cooperation.

MEDICAL MEETINGS

That the medical profession of Minnesota is alive is evidenced by the unusual opportunities recently afforded and about to be offered to physicians in the state. The A. M. A. meeting in Minneapolis in June, 1928, the Congress of the College of Physicians in the same city last February, and the Kidney Symposium at the University last July, are all fresh in our minds.

At a time when we were feeling considerable depression over the loss of three of our outstanding professors at the medical school, Drs. Schlutz, Adair and Scammon, along came the Kidney Symposium, a stupendous undertaking involving the assembling of world authorities on the kidney, conceived and accomplished by the energy of Professor Berglund.

In spite of the almost intolerable hot spell which outlasted the symposium, the meetings were well attended. Besides the many visitors, a number of local physicians attended the majority of sessions, and many returned frequently for another taste of what was for them a rather rich diet.

The first week of the two-week session was devoted to addresses and round table discussions of fundamental phases of kidney study—the

growth, development and function of kidney structures. This was contributed to by such men as Drs. Carlson of Chicago, Haber of Michigan, Marshall of Johns Hopkins, Richards of Pennsylvania, White of Saint Louis, Scammon, Jackson and Bieter of Minnesota. Functional phases of the kidney were presented by Drs. Hannon, Rockefeller Institute, Rehberg of Copenhagen, Magath and Rowntree of Rochester, and Diehl, McKinlay and Bieter of Minnesota. Drs. Robinson of Sprague Memorial, Seeter of Hastings, Barker of Chicago and Berglund of Minnesota discussed the subject of blood proteins, chlorides and water balance. Dr. Bell of Minnesota, who has directed so much of his attention to kidney pathology, gave his well known views.

The second week of the symposium was spent in discussing pathological aspects of the kidney and treatment. This phase of the subject was contributed largely by Drs. Volhard of Frankford-on-the-Main, Snapper of Amsterdam, Longcope of Johns Hopkins and Fahr of the University. Eye background changes were presented by Drs. Foshberg, Friedenwald and Wagner. The question of whether nephrosis is or is not was not finally settled, but Epstein's views were listened to attentively.

And now comes the Inter-State Assembly to Minneapolis in October. The organization originated in this section of the country as the Tri-State Medical Association, but has rapidly grown in size and national importance until attendance has rivaled that at the A. M. A. meetings. Its activities have been and should continue to be strictly devoted to post-graduate education, the program being for the most part contributed by professors or associate professors of medical schools in the United States, Canada and abroad. Members of the profession of national and international reputation will contribute to the lengthy and interesting program to be offered. This opportunity should not be missed.

COFFEY-HUMBER METHOD FOR CANCER

The remarkable publicity accompanying the introduction of the Coffey-Humber method for the treatment of cancer passed briefly into a quiet phase, leaped upward with the eastward jaunt to the congressional hearing, again became quiescent for a few weeks, and burst forth into a Sunday supplement feature. In the meantime pathologists, surgeons and other cognoscenti who have investigated the method express nothing but profound disappointment with both the clinical and the pathologic results. (Jour. A. M. A., May 3, 1930, p. 1410.)

OF GENERAL INTEREST

Dr. G. D. Guibert, formerly of Waterville, is now located at Maynard, Minnesota.

Dr. L. F. Woodworth, of Le Sueur Center, is taking post-graduate work at Iowa University.

Dr. Edward Gibbs has recently become associated in practice with Dr. Charles N. Hensel of Saint Paul.

Dr. W. C. Ehmke, of Willow River, has returned to his practice following a vacation trip in Southern Minnesota.

Dr. J. J. Kolars, of Le Sueur Center, is taking a course at the Post-Graduate School of Surgical Technique, Chicago.

Dr. C. R. Christenson, formerly of Starbuck, Minnesota, opened offices at 404-406 Wilmac Building, Minneapolis, July 1.

John A. Cameron, Jr., son of Dr. John A. Cameron, Saint Paul, died August 18, 1930, following an automobile accident the previous day.

Dr. H. K. Helseth is practicing at Appleton, Minnesota, where he located following a year's internship at St. Barnabas Hospital, Minneapolis.

Dr. Eugene Edward Scott has opened an office at 814 Lowry Medical Arts Building, Saint Paul, for the practice of general surgery and proctology.

Dr. R. Wayne Esperson has established a practice in Bend, Oregon, following the completion of his internship at the Miller Hospital, Saint Paul.

Dr. Valorus F. Lang, of Minneapolis, after completing his internship at Ancker Hospital, Saint Paul, is taking a fellowship at the Mayo Foundation.

Dr. Elmer Wahlberg is engaged in general practice at Isle, Minnesota. Dr. Wahlberg completed his internship this year at the Miller Hospital, Saint Paul.

Dr. Elmer A. Smisek is now associated in practice with Dr. Thomas Gratzek of Saint Paul. Dr. Smisek completed his internship at the Miller Hospital this spring.

Dr. A. F. Hunte, formerly of Truman, Minnesota, is now located at the San Carlos Indian Agency, Rice, Arizona, where he has accepted an appointment as physician.

Dr. Marland Williams, after completing his internship at Bethesda Hospital, Saint Paul, has taken over the practice of the late Dr. Connolly at Cannon Falls, Minnesota.

Dr. Lee R. Alderson, Rochester, after serving his internship in the Indiana University Hospital last year, is now majoring in pediatrics at the Mayo Foundation, Rochester.

Dr. Raymond B. Allen, Minneapolis, has severed his connection with the Northwest Clinic of Minot, North Dakota, and is majoring in urology at the Mayo Foundation, Rochester.

Dr. John R. Meade, Saint Paul, is taking a post-

graduate fellowship in the Mayo Foundation, Rochester, having served the past year as interne at St. Joseph's Hospital, Saint Paul.

Dr. Leslie L. Nunn has opened offices at 521 Arts Building, Vancouver, Washington, for the practice of general surgery. Dr. Nunn was formerly associated with the Mayo Clinic, Rochester.

Dr. L. R. Peck, graduate of the University of Minnesota, 1929, has established a practice at Hastings and Hampton, Minnesota. Dr. Peck was an interne at St. Barnabas Hospital, Minneapolis, the past year.

Dr. Philip Bray and Dr. Donald Dukelow, who recently completed their internship at Miller Hospital, Saint Paul, are taking fellowships in pediatrics and dermatology, respectively, at the Minneapolis General Hospital.

Dr. D. C. Wirtz, who was resident physician of the Gillette State Hospital for Crippled Children, from July 1, 1929, to June 30, 1930, has recently opened offices at 414-415 Southern Surety Building, Des Moines, Iowa, doing general practice and orthopedic surgery.

Dr. H. R. Anderson, who interned at the N. P. B. A. Hospital from July, 1929, to July, 1930, has opened an office at Twenty-seventh Avenue and Lake Street, Minneapolis. He is engaged in general practice in the view to specializing in surgery later.

Dr. M. H. Siebert, who interned at the N. P. B. A. Hospital from June 1, 1929, to June 1, 1930, was married to Miss Laura Dupont on May 31, 1930. Dr. Siebert has opened his office at Excelsior, Minnesota, where he is engaged in general practice.

Dr. Lorenz Boehler, of Vienna, was in Rochester July 17 and was entertained at a dinner given by the Olmsted County Medical Society, seventy guests from Rochester and vicinity being present. In the evening Dr. Böhler gave a lecture before a large audience on his new methods in the treatment of fractures.

Invitations to the dinner and lecture were sent out to members of the State Society in the First Councilor District.

THE BAKER BALLYHOO

Norman Baker, the high-pressure gentleman at Muscatine, Iowa, who has recently invaded the medical field with two quack cancer cures—those of Ozias and Hoxsey—continues to get publicity. This in addition to the very good job that he does over his own radio station, KTNT. Recently newspaper accounts have appeared stating that Baker had claimed that an attempt had been made on his life and that an attempt had been made to blow up his radio station. These reports were not confirmed. The only other newspaper items that have been noted regarding Baker are the reports of cancer victims who have died following the Baker Institute "treatments." (Jour. A. M. A., April 26, 1930, p. 1430.)

**A PAGE FORUM OF THE
COMMITTEE ON PUBLIC HEALTH EDUCATION**

"Summer Complaints"

"The growls one hears in the good old summer-time!" sighs the bulletin of the Brooklyn Medical Society of the County of Kings. Interesting but astonishing reading for medical readers in Minnesota.

The aftermath of a hot dry summer plus a state medical meeting is certainly not general conviction that everything in the world is wrong with medicine in Minnesota.

The County of Kings commentator picks just a few of the complaints from the din about his ears. "The costs are too high . . . the rewards are too low . . . medical men back-bite . . . the specialist becomes wealthy in short order . . . the child of the generalist goes without shoes . . . hospitals are too few, too large, too elaborate, too congested . . . and cults are anathema or life savers as the mood directs."

He should come to Minnesota. In Minnesota "summer complaint" occurs only as a name in old fashioned medical literature. Otherwise there is a sound, unalterable conviction of the dignity and worth of a free, independent, solidly organized medical profession—and complaints are chiefly conspicuous by their absence, at least in the environs of medical society executives and committee chairmen.

"As a matter of fact," asserts the County of Kings commentator sturdily, "the medical profession is not so bad. It does do its sincere bit of work every day, every hour."

It does in Minnesota, Mr. County of Kings.

The Best of a Bad Bargain

"The ethical medical profession did its utmost to prevent the passage of the Porter Narcotic Bill.

"This sort of legislation was unnecessary, uncalled for, and superfluous in every respect. Further, it is of a piece with the menacing tendencies toward bureaucratic control, that, if unchecked, will soon work the destruction of our democracy.

"Any good that is accomplished by this new narcotic drug legislation will depend upon the wisdom of the president in the selection of the Commissioner of Narcotics and the wisdom of the Secretary of the Treasury in appointing a deputy commissioner. That these two officials should be chosen from the ethical medical profession stands to reason, from the point of view of human welfare. Blanketing as it does all drug usage from import and manufacture to distribution through many channels, it would seem that this statute gives the federal government a large hunk upon which to chew. To put it mildly, the situation is so complicated that it offers endless opportunities for leakage. The chemist, the doctor, the veterinarian, the dentist, and possible commercial contingencies are all to be considered. These separate and several interests may sometimes be analogous but they are scarcely coincident. It can be disputed with justice that a physician need not be appointed to handle commercial problems, and certainly there is enough lay dictation of medicine on hand now to save the medical profession from having its needs and requirements passed upon by somebody who knows nothing at all about medicine, though possibly a terrible amount about business."—*Illinois Medical Journal*, July, 1930.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MEDICAL BROADCAST FOR THE MONTH

The Minnesota State Medical Association Morning Health Service

The Minnesota State Medical Association broadcasts weekly at 10:15 o'clock every Wednesday morning over Station WCCO, Minneapolis and St. Paul (810 kilocycles or 370.2 meters).

Speaker: William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine, Medical School, University of Minnesota.

The program for the month of September will be as follows:

- September 3—Bowel Obstruction.
- September 9—Trench Mouth.
- September 17—Cause of Flatulence.
- September 24—Acne.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The Northern Minnesota Medical Association will hold its annual meeting at Moorhead, Minnesota, Friday and Saturday, September 19 and 20, 1930.

These meetings are always well attended, and the usual attractive program is being developed for the occasion. The complete program is not yet formulated, but will include the following speakers:

- Dr. Wm. Boyd, Professor of Pathology, University of Manitoba, Winnipeg—"Rheumatic Disease of the Heart."
- Dr. P. F. Eckman of Duluth, Minnesota—"The Classification of Purpura."
- Dr. W. C. Alvarez, Rochester, Minnesota—"Diagnosis of Gastrointestinal Disease."
- Dr. H. W. Wolman, Rochester, Minnesota—"The More Common Diseases of the Spinal Cord."
- Dr. E. T. Evans, Minneapolis, Minnesota—"Orthopedic Care of Poliomyelitis."
- Dr. E. W. Humphrey, Moorhead, Minnesota—"The Open Treatment of Fracture."
- Dr. Emil Geist, Minneapolis, Minnesota—Boehler's Treatment of Fracture."
- Dr. James B. Carey, Minneapolis, Minnesota—Subject to be announced.
- Dr. R. S. Allison, Minneapolis, Minnesota—"Bone Tumors."
- Dr. Edgar Herrmann, Saint Paul, Minnesota—"Malaria and the Roman Empire."
- Dr. C. W. Schouge, Bismarck, North Dakota—"Intestinal Obstruction."
- Dr. M. A. Shillington, Saint Paul, Minnesota—"Spastic Constipation and Its Treatment."
- Dr. Harold Hullsiek, Saint Paul, Minnesota—"Benign Polyps of the Colon and Their Relation to Cancer."
- Dr. R. S. Ylvisaker, Fergus Falls, Minnesota—"Functional Disturbances of the Bowels."
- Dr. W. H. Long, Fargo, North Dakota—"Consideration in the Management of Secondary Anemia."
- Dr. F. E. B. Foley, St. Paul, Minnesota—"Plastic

Operation of the Renal Pelvis for Hydronephrosis." Dr. Wm. Baillie, Fargo, North Dakota—"Some Indications for Urologic Examination."

Dr. B. J. Branton, Willmar, Minnesota—"Ectopic Gestation."

Dr. M. H. Nathanson, Minneapolis—"Diagnosis and Management of Coronary Arterial Disease."

Other speakers on the program will be: Dr. J. A. Myers, Minneapolis; Dr. Max Hoffman, Saint Paul; Dr. A. Gibson, Winnipeg; Dr. J. D. Adamson, Winnipeg, and Dr. J. K. Anderson, Minneapolis.

The banquet is to be held Friday evening, September 19, 1930, and Dr. H. C. Cooney of Princeton, Minnesota, as president of the Association, will give his annual address. An address on "Publicity" is also to be given by Mr. Banshoof of Detroit Lakes.

The complete program will be mailed about September 1.

INTERNATIONAL ASSEMBLY OF THE INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

Among the outstanding medical meetings scheduled for the fall is the Inter-State Postgraduate meeting, October 20 to 24, inclusive, at the Minneapolis Auditorium.

In addition to prominent members of the profession from Canada and the United States, the program includes the following from abroad:

Dr. Paul Clairmont, Head of the Department of Surgery at the University of Zurich, Switzerland.

Mr. John M. C. Fraser, Regius Professor of Clinical Surgery at the University of Edinburgh, Scotland.

Dr. Edmund Gros of the American Hospital at Paris, France.

Dr. Emile de Grosz, Professor of Ophthalmology at the University of Budapest, Hungary.

Mr. John Stephen Lewis, London.

Dr. Ferdinand Sauerbruch, Professor of Surgery at the University of Berlin, Germany.

Mr. A. H. M. J. Van Rooy, Professor of Obstetrics and Gynecology, University of Amsterdam, Holland.

Dr. Henry Wade, Surgeon, Royal Infirmary of Edinburgh, Scotland.

Dr. William D. Haggard, Nashville, Tennessee, is President of the Association; Dr. George W. Crile, Chairman of the Program Committee; Dr. William B. Peck, Freeport, Illinois, Managing Director; and Dr. Edwin Henes, Jr., Milwaukee, the Executive Secretary.

AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

At the recent meeting of the American Association for the Study of Goiter at Seattle, Washington, Doctor William F. Rienhoff, Jr., of Johns Hopkins University, Baltimore, Maryland, received the annual award of \$300 for the best essay dealing with the goiter problem. Doctors O. P. Kimball, of Cleveland, Ohio, and E. P. and D. R. McCullagh, Cleveland Clinic Foundation, Cleveland, Ohio, and Robert P. Ball, of the University of Louisville, received honorable mention.

CONSULTATION BUREAU

Wm. A. O'BRIEN, M.D., Director

Minnesota State Medical Association

11 West Summit Avenue

Saint Paul, Minnesota

- Question**—Female nurse, age twenty-seven, weight 105 pounds. Past history of chorea in childhood and exposure to tuberculous patients while in training. Family history for tuberculosis negative. Present complaint dates back to summer of 1925 when she had hemoptysis of a few ounces of bright red blood and slight hemoptysis for several days following. She has had two or more similar afibrile attacks every year since. Excitement or exertion seems to be a factor in bringing on some of the attacks. Last March she coughed up bright red blood, one to four ounces, several times a day for five to seven days; feels better after hemoptysis. She has been losing strength since this last attack. In the last few days she has had two attacks of hemoptysis. Since January 1, there has been increased dyspnea and cough on exertion, some sub-sternal oppression, weakness, and slight loss of weight. In summer of 1928, I tapped her left chest and removed 1,000 c.c. of straw colored fluid which was negative for tubercle bacilli by guinea pig inoculation. Stereoscopic films of the chest four years ago were negative for tuberculosis. X-ray and chest examination negative since for tuberculosis.

I have diagnosed her case as combined mitral stenosis and regurgitation on account of harsh, rumbling murmur ending in loud first sound at apex, slight left ventricular enlargement by x-ray; an apex beat as if a jet of liquid were pushed against the hand (no palpable thrill); a reduplication or rather gallop rhythm of P2 in third left interspace and normal blood pressure. What are possibilities in her case? Would mitral stenosis give such attacks of repeated hemoptysis, last attack lasting from four to six days? Can digitalis be safely given in such attacks?

Answer—You have apparently ruled out pulmonary tuberculosis as the cause of your patient's hemoptysis. Mitral heart disease is a frequent sole cause of this condition. It is due to marked passive congestion secondary to a dilated left auricle and a congested pulmonary circulation or passive congestion combined with single or multiple infarction. Infarcts of the lungs occur frequently in connection with passive congestion. You state that the left ventricle is slightly enlarged by x-ray examination. Was this a six-foot plate or was it a flat plate in which a search for tuberculosis was being made? Enlargement of the left ventricle may occur in conjunction with mitral stenosis and regurgitation, especially when the regurgitant phase is more marked than the stenosis. Other causes would be associated hypertension, involvement of the aortic valve with a defect, or pericardial adhesions as a result of rheumatic infection of the pericardial sac. You did not state the temperature of your patient. Such a picture as you have described might be associated with active reinfection of the valves and mural endocardium.

The patient is apparently decompensated and should be treated for myocardial insufficiency. The use of digitalis is not contraindicated. It is the only known way of treating such a patient with hemoptysis.

- Question**—A patient who has been injured comes to my office for care. I find it necessary to take x-ray pictures to aid me in making a proper diagnosis. The patient pays for his care and for the x-ray examination. To whom do the x-ray pictures belong?

Answer—To the owner of the apparatus. In your case they belong to you. X-ray films are only a medium through which we gain certain information. They might be compared to a stethoscope or to a thermometer. If the examination was conducted in a hospital by you and the hospital owned the apparatus, the x-ray films would belong to the institution.

- Question**—A young man had been injured the night previously in an automobile accident, and he suffered several rather deep lacerations. These were cared for in the ordinary manner with thorough cleansing of the wounds with tincture of iodin and alcohol. After the wounds were dressed I told the patient that I would give him some tetanus antitoxin. He refused saying that he would rather take his chances with lockjaw than to take the serum. Should this patient develop tetanus, am I liable?

Answer—No, you are not liable. It probably would be better in a case like this to obtain a written statement from the patient to that effect. Institutions use a regular form for this purpose, when patients sign out before the treatment is completed and against the advice of the physician. However, it probably would not make any difference in your case if witnesses were present.

- Question**—What is the cause and treatment of achylia?

Answer—Achylia literally means absence of chyle which would include both pepsin and hydrochloric acid. In most instances achylia means absence of acid because the enzymes are not searched for. It is possible to have the enzymes present and the acid absent. Achylia occurs in apparently normal individuals, with advancing years, in certain families and in connection with several diseases, notably carcinoma of the stomach and pernicious anemia. The probable cause is atrophy of the glands of the stomach although it may be temporary depression. It is assumed that the condition follows chronic gastritis although this is problematic.

The treatment of achylia is usually not started unless there are symptoms. Diarrhea is a fairly common complaint in patients with this disorder. When diarrhea or other symptoms develop, a bland, non-irritating diet is advised and dilute hydrochloric acid is given before meals.

OBITUARY**W. A. Frost, Ph.G.**
1854-1930

Mr. W. A. Frost, one of the best known pharmacists in the state and one of the veterans in the profession, died August 12, 1930, at his home in Saint Paul, of heart trouble which had incapacitated him for a few weeks.

Mr. Frost was born in St. John, New Brunswick, April 11, 1854, and came to the States when sixteen years old in the employ of Caswell, Hazard and Company, the firm name later being changed to Caswell, Massey and Company.

He received his training in pharmacy at the New York College of Pharmacy, which later became incorporated with Columbia University. Upon leaving New York he came west and went into business under the firm name of Carlson Brothers and Frost at Willmar, Minnesota.

Several years later Mr. Frost came to Saint Paul and located under the firm name of Clark and Frost at Third and Robert Streets, when Third Street was the main business street of the city. When business left Third Street he moved to Sixth and Minnesota, where he was established until about 1890, when he moved to the present location at Western and Selby Avenues.

For twelve years Mr. Frost was president of the State Board of Pharmacy and for several years lectured at the University College of Pharmacy. He was elected honorary president of the American Pharmaceutical Association, an honor granted yearly to members who have been pharmacists for many years and whose practice in the service has been "distinctly professional." Many years ago he served as second vice president of the national organization and for three years was a member of the executive council.

Mr. Frost was a thirty-second degree Mason, a Scottish Rite Mason and for many years treasurer of the Summit Lodge and the building fund of that lodge.

Mr. Frost lived at 748 Goodrich Avenue, Saint Paul, and is survived by his widow and a niece, Mrs. Edward Schons.

Mr. Frost had a host of friends in the medical profession. Included among his friends were a number of the oldest physicians in Saint Paul, to whom he had lectured on pharmacy in the early days of the Saint Paul Medical School. His refusal to dispense liquor following national prohibition was an indication of his probity and adherence to his convictions.

Dr. John Frederick Russ
1866-1930

Dr. John Frederick Russ of Blue Earth, Minnesota, died at his home August 13, 1930, of cancer of the stomach. Dr. Russ was born in Buffalo, New York, in 1866. His medical training was received at the University of Iowa, where he received his degree in 1893.

Dr. Alfred Erwin Comstock

1872-1930

Dr. A. E. Comstock, Saint Paul, died a few hours following a stroke July 24, 1930, at his home. He was born at Fayette, Iowa, February 21, 1872, and was the eldest of six.

In 1895 Dr. Comstock obtained the degree of B.S. from the Upper Iowa University and M.D. from the Hahnemann Medical College of Chicago in 1899. He came to Saint Paul in 1900, and was associated for a year and a half with the late Dr. W. S. Briggs. His practice of late had been limited to surgery.

For some ten years Dr. Comstock was professor of surgery in the homeopathic department of the University of Minnesota, and for the past twenty-one years was chief surgeon for the Beneficial Association of the Omaha Railroad. He was a member of the staffs of St. Joseph's and St. Luke's Hospitals and for more than twenty years was visiting surgeon at the Ancker Hospital. At different times he had the benefit of postgraduate study at Vienna, Paris, London and Berlin.

Dr. Comstock was commissioned captain in the Medical Corps at the time of the World War and spent six months overseas attached to Mobile Hospital No. 103. From April, 1926, to February, 1929, he was executive secretary of the Minnesota State Board of Medical Examiners and at the time of his death was a member of the University, Minnesota, and Town and Country Clubs. He was also a Royal Arch Mason.

On February 8, 1907, Dr. Comstock married Miss Minnesota Berkey of Saint Paul, who survives him with a daughter, Minnesota, and a son, Alfred Erwin, Jr.

TESTICULAR GRAFTING

At the International Physiological Congress in Boston last summer, Voronoff boldly reported in relation to his widely proclaimed testicular grafting that the successive phenomenal results of the transplantation are now definitely established. Recently, Moore has discussed the astounding claims that are prevalent in this field and remarks that the absence of dependable indexes for the alleged "hypogonadism" in man, or the inability to utilize proved indicators for hormone introduction by any means, appears to have caused but little concern to clinicians employing these supposedly remedial measures. Astonishing as it may be, published statements of the effect of hormone introduction, or alleged hormone increases from the intact organs, claim improvements for conditions that fairly well exhaust the ills to which man has fallen heir. Moore concludes that there is no known acceptable evidence that non-viable testes grafts, that is, grafts that fail to become incorporated with the body and actively secrete, exert any immediate or remote beneficial effect on the host organism. (Jour. A. M. A., July 19, 1930, p. 203.)

PROCEEDINGS OF THE MINNE SOTA ACADEMY OF MEDICINE

Meeting of May 17, 1930

On Wednesday evening, May 17, 1930, at the Minnesota Club, St. Paul, the Minnesota Academy of Medicine, in lieu of its regular May meeting, gave a Founders' Dinner in honor of the living members of the group that founded the Academy in 1887. There were 75 members and guests present.

Dr. Emil S. Geist, President of the Academy, acted as toastmaster.

DR. GEIST: Members of the Academy: In honoring our guests this evening we but honor ourselves. Of the forty founders of this association, ten are living today. They are

- Dr. Frank Allport
- Dr. R. O. Beard
- Dr. J. W. Bell
- Dr. H. M. Bracken
- Dr. William Davis
- Dr. F. A. Dunsmoor
- Dr. J. F. Fulton
- Dr. W. A. Jones
- Dr. Justus Ohage
- Dr. Thomas S. Roberts

We regret that Drs. Allport, Bracken and Dunsmoor are not with us this evening.

You will note that the majority of these gentlemen hail originally from Minneapolis, which may be proof that perhaps after all Minneapolis is a more salubrious city than St. Paul.

1887! That was the year of the founding of this Academy. At that time St. Paul had about 115,000 inhabitants and Minneapolis perhaps a few more. That was the time of the great "census war" when there existed much rivalry between the sister cities. Even the inhabitants of cemeteries were counted as "population" and no doubt our honored guests did their level best at that time to increase the population.

That was the time of the horse, the gas lamp, the horse-car and the cable-car.

St. Paul was a much smaller city than it is today. The Cathedral stood on the site occupied by the Hamm Building, filled as it now is with doctors. Can this be termed progress?

The end of Summit Avenue was at Dale Street. Beyond that was wilderness. Third Street was the chief business thoroughfare. Who of us does not remember the Tivoli and the Merchants Hotel? Who does not recall the old Windsor Hotel, located as it was across the street from the building occupied by a large group of physicians? And its bar??!

To get to Minneapolis was a hardship. One availed oneself either of the railroad or took a horse and buggy. In either event it was a day's journey. Minneapolis had emerged from being St. Anthony Falls. Washington Avenue was "the" business street. It was the day of the Exposition Building and the "Panorama." The University was still a baby. There were

not only large flour mills but also large lumber mills, the latter now a thing of the past.

In those days golf was unheard of. For amusement the doctors went fishing, boating and hunting. The Mississippi River, our finest asset, was much used for these purposes. It had not yet become a glorified sewer.

In introducing the first speaker, I am introducing the man whose mind conceived this organization. He was also its *first* President. He is with us tonight, as young as he ever was.

I take great pleasure in introducing Dr. John F. Fulton of St. Paul. (Applause.)

DR. FULTON: In October, 1887, a few representative medical practitioners of the Twin Cities assembled in the West Hotel, Minneapolis, for the purpose of organizing a medical society with the intention of bringing together all of the specialties in medicine and thus combine the most powerful aids for the advancement of general medicine and surgery, keenly appreciating the fact that the specialist whose education is not well-founded on the art and science of general medicine is not worthy of recognition by the profession, and believing that the specialist, from the enthusiasm in his profession, devotes his entire life to the double object of planting seeds gathered from the great stores of general medicine into his special soil in order to return gratefully to general medicine the harvest which is ripened fruit. A specialist can make no advance or discovery in his field which will not have a beneficial effect upon all branches of medicine. So it was the wish of those who organized this Academy, expressed in the language of another, that each specialty should be a diamond held together by a string of gold which is scientific medicine and surgery.

Ophthalmology was the first specialty to establish itself as such. But no class of men have been so constant and determined in retaining their co-operative relationship with other branches of medicine. As an illustration, Doctor Cushing, in a recent address, referring to the maladies of the optic chiasm, remarked that this was the crossroads where the ophthalmologist, the physiologist, the pathologist, the neurologist and the general surgeon met, but the ophthalmologist holds the right of way. The association of the oculist and the neurologist has always been most intimate.

In 1865 Sir Hughlings Jackson said, "It is imperative in all cases of cerebral disease to examine the eyes with the ophthalmoscope whether the patient complains of defect of sight or not. The intraocular condition most frequently discovered is double optic neuritis and it is very common for this to exist in a patient who can read the smallest type and who supposes his sight is good."

In a recent address, Dr. Edward Jackson declared: "It is a modest inference going little, if any, beyond what individuals have already received, who claim that ophthalmoscopic examination of the optic nerve will, in the very near future, play as important a part in the observation of general disease as the feeling of the pulse did seventy years ago."

This is a very strong indication of the progress that

has been made in the development of the ophthalmoscope as a diagnostic instrument in general practice from the days of Sir Hughlings Jackson, of England, to the present day of Dr. Edward Jackson of America.

No one gave a greater impulse to the value of the ophthalmoscope in diagnosis than Sir Clifford Allbutt. His epoch-making monograph on the use of the ophthalmoscope in diagnosing diseases of the brain and spinal cord and of optic neuritis in pyemia is one of our most useful textbooks today.

The importance of medical ophthalmology was quickly recognized by American physicians, among the first being S. Weir Mitchell. I know that every member of the Academy is familiar with his magnificent work along this line. It was this genius of our profession who first used the word "eyestrain" in his classification of headaches.

Other American authorities, such as William F. Norris, of Philadelphia, during my student days, insisted that all patients in the University Hospital of Pennsylvania should have careful ophthalmoscopic examinations.

The relation of the eye to the central nervous system has been referred to as the "bulletin board of diseases of the brain and the spinal cord." Of the twelve cerebral nerves, six are distributed partly or wholly in the eye and its appendages.

Now that so many of us are in a historical turn of mind, I am reminded that I was in Berlin when Koch first announced his tuberculin treatment of tuberculosis before it had been thoroughly investigated. It was claimed at the time, as I remember, that he was forced to do this by the high government officials on account of the international medical convention which was in session in Berlin at that time.

Mr. Treachor Collins, of London, was one of the first to test tuberculin therapeutically for ocular tuberculosis. The pathology being situated as nodules on the edge of the pupil, the result was disastrous, starting up a severe reaction which resulted in the loss of the eye. This did not discourage Mr. Collins, however, from continuing the use of tuberculin therapeutically for ocular tuberculosis, as he has recently pronounced it a most reliable and satisfactory remedy for this condition.

It is to be hoped that this Academy will use its influence to establish a great library in this community, such as the one that has recently been opened in the East, and others that are about to be opened, in which will be stored all of the treasures of medical literature. In the language of one who is the maker of books himself and a lover of books and literature, "It should not be a graveyard for the accumulation of volumes only to be forgotten, but in which there is a spirit world of books, useful to all who know how to use them."

The doctor need not go outside of his own profession in order to find absorbingly interesting literature. The chapter in Ballory-Radot's Biography of Pasteur on the working out of a vaccine for the relief of hy-

drophobia is the most thrilling and interesting that can be found in any literary production. And Cushing's Life of Osler is one of the most popular books that has been written in many years. If there is any member of this Academy who has not read it, he has a great treat ahead of him.

Since this Academy has been organized ophthalmia neonatorum has been eliminated; sympathetic ophthalmia is a rarity, and trachoma is confined to localities where hygienic conditions are not obtainable.

But what of the future? What will we have to report forty years from now? We are expecting much. Our hope, however, hangs on physiology, biochemistry and biophysics. The two conditions that will be most improved by such progressive development in ophthalmology will be glaucoma and lenticular and corneal opacities. In regard to the latter, Duke Elder in a recent address expresses himself as follows: "Cataract, as we have seen, is another purely physico-chemical problem, the denaturation, hydrolysis and coagulation of the proteins of the lens—and the essential opacities which occur in the cornea seem to be of the same nature. All of these conditions will before long be explicable, and all of them should eventually be curable or preventable by physico-chemical means"; all of which I endorse.

With a more thorough knowledge of the internal fluid circulations of the eye and the study of the function of the supplementary system of circulation, known as the lymphatics, we have every reason to hope that the syndrome known as glaucoma will become preventable and then, when it does occur, its course will be checked from the disastrous course which we now think is inevitable.

I am enthusiastic in the belief that this Academy will continue to be a careful recorder of clinical observations, the encourager of laboratory investigation, and a just endorser of new, meritorious therapeutic agents.

I cannot do better in closing than to repeat a quotation from Sir T. Brown, as I did in my first address to this Academy, "Where Nature fills the sails, the vessel goes smoothly on, and where judgment is the pilot, the rate of insurance need not be high. Where industry builds up Nature, we may expect pyramids, but where this foundation is wanting, the structure must be low. They do most by books, who could do much without them, and he that chiefly owes himself unto himself, is a substantial man." (Applause.)

DR. GEIST (introducing Dr. Bell): In 1887 Lake Harriet was far away from Minneapolis. It was used for picnic purposes. Today it is surrounded by dignified city homes. It was my privilege to invite the next speaker at one of these homes. Dr. Bell has seen Minneapolis grow from infancy to mature manhood. During that time everything about Minneapolis has changed excepting himself, who has remained ever youthful. I take great pleasure in introducing Dr. John W. Bell, of Minneapolis. (Applause.)

DR. BELL: On an occasion of this kind we naturally focus our attention upon the past. As early as 1885 the progressive physicians of the Twin Cities felt that

the time had arrived for the founding of a State Society that would especially appeal to those interested in original work.

Fortunately the founders of the Minnesota Academy of Medicine were not confronted by the unfortunate situation existing today of innumerable and overlapping medical societies and organizations, tending to weaken rather than strengthen the county, state and national groups. Personally, I feel that Drs. Fulton, Abbott, Wells and Beard are largely responsible for the birth of this organization.

Our first Secretary, Dr. R. O. Beard, who continued to labor for fifteen years in the interest of the Academy, undoubtedly had much to do with shaping its policy and destiny. It gives me great pleasure, after the many years of useful and unselfish service he has given to the Academy and to Medicine in general, to have him still active in Public Health work.

The Minnesota Academy of Medicine has had, and will doubtless continue to have a prominent part in shaping the course and destiny of things medical in the State and Northwest. (Applause.)

DR. GEIST (introducing Dr. Ohage): The next speaker your all know. I think perhaps you know him better than I do; I am still trying to figure him out. I take great pleasure in introducing Dr. Justus Ohage, of St. Paul. (Applause.)

DR. JUSTUS OHAGE: Gentlemen: Being one of the charter members, and perhaps the oldest, of this organization, the present President, Dr. Emil Geist, of Minneapolis, requested me to make a few remarks about surgery at the present time compared to that half a century ago. A few years ago I had the pleasure of visiting one of the largest and finest clinics in the country, the Mayo Clinic at Rochester, Minnesota. Its grandeur, thoroughness and success were a marvel to me and I could not help comparing the facilities and resources of this institution to conditions which I had to face 50 years ago. Then there were but few hospitals, most operations were done in private houses under very bad aseptic conditions, different assistants, few nurses and often after hard and strenuous trips. My main reliance, and it is still the best, against sepsis, was scrupulous cleanliness with bichloride as an adjuvant. Often I had to be my own assistant, caretaker of instruments and dressings, while the local surgeon administered the anesthetic.

I will recite you only a few cases out of very many. In the winter of 1883, Dr. E. Y. Chilton, of Howard Lake, Minnesota, called me for an operation for intestinal intussusception. The doctor met me with his cutter at the depot and after an eight-mile ride over rough roads and snowbanks at 35° below zero, we arrived at the farmhouse where the patient lived. I operated, Dr. Chilton gave the ether, and an old farmer with a huge beard held the kerosene lamp for light. He got his whiskers over the lamp chimney, which set his beard afire. He fell and fainted, the lamp exploded and set the kitchen where we operated on fire. I had just relieved the obstruction and was ready to close the abdominal wound. I luggered the patient into

the cold adjoining room, the fire was extinguished and I closed the abdomen, dressed him and put him to bed. He made a clean recovery.

A year later I did an ovariotomy for Dr. Wm. Lincoln at Wabasha, Minnesota. The patient was the wife of the railroad section foreman. The operation was done in the sitting room of the section house. Dr. Lincoln assisted and a druggist gave the anesthetic. The operation was an easy one and after removing the tumor, Dr. Lincoln sponged out the abdomen while I was getting the sutures ready. At that period I used sea sponges previously boiled. Upon inquiry he answered me that everything was out. I closed the abdomen, applied the dressing and had the patient put to bed. I had heard of things being left in an abdomen and their dire consequences and always counted every instrument and sponge before and after an operation. Everything was accounted for but instead of six, I could find only five sponges—one was missing. We hunted all over the room, under tables and in closets, in the yard where the bloody water was thrown—but no sign of the sponge. I concluded if it was anywhere it must have been overlooked and still be in the abdomen. By this time her husband had joined in the hunt and he became rather boisterous and not very complimentary in his vocabulary. The situation was not a pleasant one. A wild, powerful Irishman, his wife just recovering from the anesthetic and a sponge in her abdomen! A last I succeeded in getting the patient back on the table, reopened the wound and found the sponge behind a coil of intestines. The patient made an uneventful recovery.

In the year 1886 I operated in St. Joseph's Hospital two cases for gallstone trouble: the first was a cholecystotomy and the other a cholecystectomy. Both cases recovered and lived to a good old age. They were the first cases ever operated in America. I published them in the "Medical News" of Philadelphia, Feb. 19 and 26, 1887, then the leading medical journal in the United States. I incidentally mention this as Dr. Geist claims the honor of priority for a member of the Minnesota Academy of Medicine. The feasibility and success of these operations having been established, they are now frequently done and have saved many lives and allayed suffering.

When the new and modern St. Luke's Hospital on Smith Avenue was dedicated, I was selected to do the inaugural operations: a resection of the stomach for malignant disease, and another patient for gallbladder trouble.

I operated before the senior class of the State University. Among the students were four young women. I was always skeptical about women entering the medical profession and at this occasion thought their attention was rather poor. I looked for a little revenge. During the gallbladder operation, I saved a little of the bile in a tumbler and with my talk about the operation I drew attention to the necessity of close observation. The *vox viva* of the teacher and an occasional addition of a little "Attic salt" will make a lasting impression. "Some of you," I told them, "may

settle in a small country town and get into a talk with some of the old wise women of the place. They will watch and judge you. They may ask your opinion about poor Mrs. Brown vomiting yellow bile and bitter as gall. So you may know everything about bile, I pass this sample. You can tell its weight, see its color, smell its odor, and if you do as I do, put the tip of your finger in it and taste it, you can tell whether it is bitter or not. Now have you all examined it?" "Yes." "Is it bitter?" "Very." "Then you all are poor observers. You did not observe that I put my middle finger into the bile and my index finger in my mouth."

The Minnesota Academy of Medicine has well done its share in advancing the progress of medical sciences and will certainly continue to do so.

Vivat—Crescat—Floreat! (Applause.)

DR. GEIST (introducing Dr. Roberts): In 1887 the next speaker was a young man. He is still a young man. He was then an excellent physician and ornithologist. He is still the same. During the past years he has devoted more of his time to his glorious hobby—"birds"—and his work for, about and among them is known all over the country. Long may he live! I take great pleasure in introducing Dr. Thomas S. Roberts, of Minneapolis. (Applause.)

DR. ROBERTS: I wish to take this opportunity of thanking the committee that arranged this dinner. I was not aware until notified by our President and Secretary that I am entitled to a place among the Founders of the Academy. Such being the case, the honor must have come through the courtesy of my friend and preceptor, Dr. A. W. Abbott. I had the good fortune to be in his office for two summers before, and to be his surgical assistant for nearly seven years after my graduation. A more kindly, unselfish and loyal friend no young man ever had.

Dr. Ohage has told you of the primitive conditions under which surgery was often done in those pre-hospital days. The operating room was not infrequently the kitchen or living room of the patient's home and the operating table was usually the kitchen or laundry table. The helpers were members of the family or interested and curious neighbors; trained nurses were few and far between; the kitchen kettles and pans and stove provided the means for such sterilizing as was done; and not many of the things considered so essential today were at hand. However, the results were surprisingly good considering the increased risks incurred from the present point of view. Some years ago Dr. Abbott read before this academy a paper presenting in his happy manner a picture of those good old primitive pioneer days.

Having mentioned Dr. Abbott as a physician and surgeon, I may perhaps be permitted to present him in another aspect, unknown I imagine to most of you who knew him well in and out of the Academy. When I first became acquainted with the Doctor, I was acting as Secretary of the Minnesota Academy of Natural Sciences. Many of the original members of that organization were physicians, as it was the era when medical men quite generally were interested in the natural sciences. As a boy I turned naturally to such

pursuits, attended the meetings of the Academy and became a member while still a student in the Minneapolis schools. A little later Dr. Abbott was admitted to membership and it is of his hobby or special interest that I wish to speak. He believed, whether independently or not I cannot say, that it might be possible to determine the age of a fish by studying the concentric lines of growth on the scales. He collected considerable material and made a beautiful series of enlarged fish scales of various species. The Smithsonian Institution and the United States Department of Fisheries with Dr. Spencer F. Baird in charge became interested in the Doctor's work and a correspondence developed. Dr. Abbott was preparing a paper embodying his findings which was to be illustrated with his drawings, but, becoming more and more occupied with a rapidly growing practice, he gradually drifted away from his project and failed to establish the truth of his thesis. Now, curiously enough, this is the recognized means of determining the ages of fishes. Had not Dr. Abbott become so absorbed at that time in the practice of his profession, it seems certain that he would have carried his studies far enough to have become a recognized pioneer in this scientific, but practically important, line of research. Dr. Abbott had a scientific, inquiring type of mind but he allowed his profession to stifle all outside interests. Today whenever I chance to open a work on ichthyology and see the illustrations of fish scales, depicting the regular series of striæ, my mind goes back to the beautiful collection of drawings that Dr. Abbott made so many years ago.

In closing, I wish to add my appreciation of the honor paid by you tonight to the small group of Academy Founders gathered around this table. (Applause.)

DR. GEIST (introducing Dr. Davis): In 1887 I was a nine-year old boy living in St. Paul. Our home was situated on the street running between St. Luke's Hospital and St. Joseph's Hospital. I recall seeing Drs. Wheaton, Stone, Fulton, Gillette, Ohage and others passing by in their buggies, vying with each other as to who had the "classiest" rig. Of these, I think Dr. William Davis' outfit attracted my attention more than the others; possibly because he had the best horse. I take great pleasure in introducing Dr. William Davis, of St. Paul. (Applause.)

DR. DAVIS: Mr. President, Members and Guests of the Academy. An old camp-meeting preacher introduced his sermon with the modest statement that he would now proceed "to limit the illimitable, to fathom the unfathomable and unscrew the inscrutable." The inscrutable which I propose to unscrew is the beginning of the Academy. Previous speakers have given you their version. I will tell you now just how it was begun.

In October, 1887, the late Dr. Perry H. Millard came to the office which I shared with Dr. Witherle and told us of a plan to found an Academy of Medicine, made up of twenty men from St. Paul and twenty from Minneapolis, to hold monthly meetings alternately in the two cities. Dr. Millard was a great getter-up of things. It was largely through his instrumentality

that our State Medical Practice Act was brought about, and Minnesota was one of the first states to pass such a law. Then, too, he was foremost in establishing a teaching faculty at the Medical Department of the State University. There had been a medical faculty but it had been a paper faculty only. Dr. Millard accomplished the difficult task of getting the faculties of the St. Paul Medical School and of the Minneapolis Hospital Medical College to come to such an agreement as to unite and form the present Medical School of the University of which we all are so justly proud. When he told Dr. Witherle and me about the proposed Academy and said, "and you two gentlemen are invited to join," I was very glad to accept, for at that time the local medical societies were at a very low ebb. The profession in Minneapolis were divided into two hostile camps that fought one another tooth and nail. Many of the good men would not belong to the Hennepin County Society and had formed a new one, the Minneapolis Society of Physicians and Surgeons. Indeed, the antagonism was so bitter that a Minneapolis doctor whom I had known in the East told me seriously that he believed some of the men in the other camp had tried to instigate a malpractice suit against him. In Ramsey County we were more harmonious, but there was no enthusiasm for the Ramsey County Medical Society, which met around in doctors' offices, often cheerless and dimly lighted rooms, usually with no program prepared and with the scantiest attendance. Indeed, of one meeting the secretary, Dr. Spencer, made the report that those present were the president and secretary and his, Dr. Spencer's, dog Peter, and he drew a picture of Peter on the minutes, a picture which is on the records today.

From the start the Academy was a success, although it suffered from several handicaps. For one thing, the only transportation between the cities was by the steam railroads which ran half-hourly trains up to nine o'clock at night and less frequent trains after that. Then, too, there was sure to be a preponderance of the members from the city where the meeting was held. But when, three years later, through cars began to run on the street railway between the two cities, and when the meeting place was changed to the Town and Country Club, and best of all when the automobile came along and made access to the meetings quick and easy for us all, the attendance grew to such a point that at the April meeting the secretary reported that over fifty members had been present at the March meeting, and I am sure there were fully as many in April, while as for the enthusiasm, that leaves nothing to be desired.

There is an excellent story I read once called "The New Minister's Great Opportunity," which tells how a young minister, called to a country parish, found that almost the first duty expected of him was to conduct the funeral obsequies of the village patriarch, old Uncle Capen, who had just died over one hundred years old. And everyone said what a wonderful chance this was for the new minister to tell about Uncle Capen's remarkably long life. But when the minister came to look about for material for the expected eulogy he

found very little to help him, for Uncle Capen had led a most colorless life. His occupations had been chiefly sawing wood and whitewashing, and he had much preferred to sit by the kitchen stove to doing either of these. He had taken no active part in social, civic, or political life. So when it came to the funeral, the minister spoke of the great age of the departed and then proceeded to tell of the great changes that had come during his lifetime. He described the invention of railway trains and steamboats, of the telegraph, of photography, and other inventions, and his hearers were delighted with the address. But afterwards one of the parishioners said to the minister, "I enjoyed your remarks at the funeral but there did not seem to be much about Uncle Capen in them." "No," said the minister, "but you must admit that I did not say anything that was not so."

Now I propose to borrow a leaf from the minister and instead of talking about the first members of the Academy and perhaps saying things that were not so, to look back at the changes that have taken place in medicine during the forty-three years of the Academy's lifetime. First of all I think it will be interesting to see what diseases headed the death list in 1887. Some of you will not be prepared to hear that the chief cause of death was cholera infantum, a disease that has disappeared entirely from medical nomenclature. And when we add the deaths from the related diseases, colitis, enteritis, enterocolitis, and gastroduodenitis, with moreover the large number of deaths ascribed to convulsions which were really the end result of diseases of the same class, the total is over four hundred, more than twice that of the number of deaths from the next on the list,—pneumonia. Cholera infantum and these allied diseases are all grouped together today under the title of the diarrheal diseases of infancy, the total deaths from which in St. Paul last year were sixteen. I am giving you the figures of St. Paul. Those of Minneapolis would be little different except that there was more typhoid there at that time because the city drank untreated river water.

The second cause of death, pneumonia, holds high rank today, being third in last year's list; but the third, typhoid fever, accounted for but four deaths last year. Tuberculosis of the lungs, then listed as phthisis, was fourth, and that has dropped now to sixth place. The next, diphtheria, caused only five deaths in 1928. Our list today is headed by heart disease, which was then eighth, causing fewer deaths than infantile convulsions. Next to heart disease, cancer now prevails. In 1887 cancer held sixteenth place. Certainly medical science has much to be proud of in that it has practically abolished three diseases that were prime causes of death at the time of the birth of this Academy.

The hospitals of 43 years ago were small and few in number, often merely dwelling houses made over for hospital purposes. Except during the typhoid season they had few medical cases and very few confinements. Today about four-fifths of the births take place in hospitals. Except for the insane there were no special hospitals like those for tuberculosis and for crippled

children today. Even the hospital for the insane was more often called an asylum than a hospital. There were no specially fitted operating rooms with their white enameled furniture, their sterilizing rooms, gloves, caps, and masks. If gowns were worn they were chiefly to protect the surgeon. Anesthesia was with chloroform or ether as the surgeon chose, and the choice between the two was about equal. Cocaine had just appeared but was used chiefly in eye operations. Local anesthesia came much later. The present-day clinics had not come into being. Will Mayo had been in practice but four years and Charlie Mayo had not even taken his degree, and the great clinic whose buildings rise like landmarks from the prairies of southern Minnesota had not even been dreamed of.

That was the era of antiseptics. Carbolic acid was going into the discard and bichloride was taking its place. For hand disinfection this was used in the strength of 1-1,000, for irrigation from 1-2,000 to 1-4,000, while instruments were sometimes put into solutions as weak as 1-15,000, which could have had little germicidal power. Asepsis and sterilization by heat came several years later. This was curious, because in 1886 Lawson Tait, of Birmingham, had published a series of 139 consecutive abdominal sections without a death. These statistics never were questioned, as in each case reported he gave the initials of the patient's name and the name of the physician by whom the case was referred. At this time Lister and Spencer Wells were satisfied with 85 to 90 per cent of recoveries. Lawson Tait scorned chemical antiseptics but he was scrupulously clean. He used water from the tap to wash out the abdomen and said he sometimes put a little carbolic acid into the bag of sponges to keep out the flies. The sponges, by the way, were real sea sponges, washed as clean as possible after each operation and used again. Yet no one learned from Tait that cleanliness, including boiling water, was the real thing.

It was only a year before the date of the Academy's birth that Fitz, of Boston, gave to the world the word appendicitis, and showed that what was then called typhlitis, perityphlitis, or often only inflammation of the bowels, was really a diseased appendix. Even in 1887 operation was rarely done except in the presence of a tumor or for manifest peritonitis. What a boon that word appendicitis has been to the profession! Who can measure the value in dollars and cents?

Ulcer of the stomach, now so common, was diagnosed but seldom in those days. The books spoke of it as uncommon and discouraged its diagnosis unless hemorrhages were present. Ulcer of the duodenum was rarer still. Of course there was no x -ray, and other instruments of precision like the sphygmomanometer and the electrocardiograph had not been invented. Infantile paralysis in epidemic form was not known, nor was it regarded as communicable. Until 1889 there had been no epidemic of influenza for forty years and no one had seen it until it appeared that winter.

In obstetrics there have been great changes. In proportion to the number of births there were in 1887

ten times as many deaths from puerperal sepsis as there were in 1928. Most remarkable is the frequency of cesarean section today. In St. Paul the first successful operation of this kind was not done until 1889. Today cesarean section is done for slight degrees of dystocia, for placenta previa, for concealed hemorrhage, for eclampsia, for almost no reason at all or because mothers think it easier than normal childbirth. Indeed it is getting so popular to have babies come into the world by the front door that the lying-in wards of our hospitals may be obliged to put out the notice often seen at the entrance of apartment houses, "All deliveries must be made at the rear."

Of the cults and systems of medicine, homeopathy was active in 1887 and we were still mistakenly fighting it. Now that we consult with him and welcome him to our societies, the homeopath is becoming a rare bird. Osteopathy then was in its infancy, but as he grows up the osteopath is getting educated and no doubt will eventually become merged with us, like the homeopath. Christian Science was already active, but that is only our old acquaintance—faith cure—dressed up in the ungrammatical platitudes of Mrs. Eddy. Of quacks we have had John Till in Wisconsin plaster the backs of thousands and gather enough dollar bills to plaster his house inside and out. In California we have seen Abrams become a millionaire with his electronic device. Another quack whose name escapes me, but who reaped a great harvest by pretending to make a diagnosis by examining a drop of the blood, reminds me of a story told here some thirty years ago by our dear old friend, Dr. A. W. Abbott, about a quack named Dr. Jack who made his diagnosis by examining a specimen of urine. On one occasion a man brought him a bottle of urine to examine. The quack looked at it and said, "This is your wife's urine." "Right," said the man, "What is the matter with her?" The quack pondered a moment and then said, "She has fallen down stairs." "That's right," said the man, "how many steps were there?" "Nine," said the quack after a moment's hesitation. "You're wrong," said the man, "there were twelve steps." The quack looked at the bottle again. "Did you bring me all the urine your wife passed?" "No," said the man, "I couldn't get it all into the bottle and had to leave some behind." "Well," said the quack, "those other three steps were in the rest of that urine."

Cults may rise and disappear, quacks may flourish for their short day, but the science of medicine goes on like a mighty wave, not crushing all that lies in the path like the steam roller of the politicians, but lifting up and absorbing to itself all that it meets that is good. To this progress the Academy has contributed its full share during the forty-three years of its existence. I am proud to have been one of its founders, and I predict for it a long-continued career of usefulness by contributing to the enjoyment and professional advancement of the medical men of this part of the Northwest. (Applause.)

DR. GEIST (introducing Dr. W. A. Jones): The next speaker whom I am about to introduce needs no

introduction. We all know him and love him. We have just heard Dr. William Davis, who was the first editor of the Journal-Lancet. It is fitting for us to hear from the present editor of that publication. I take great pleasure in introducing Dr. W. A. Jones, of Minneapolis. (Applause.)

DR. JONES: I hardly know where to start in an attempt to talk, but I am very much impressed with Doctor Davis' talk on the diseases of those days and the fact that he did not mention marasmus. No one knew what it was. A non-medical man started an investigation to find out what it was. Since then it has disappeared entirely.

I recall a great many incidents in my brief career which were very interesting. I remember once I was consulted by a medical man who had a lady patient with him. He said he had studied the case very carefully and thought it was a case of inflammation of the prostate gland!

I want to tell the Academy that I am one of the proud members of this organization but I did not remember that I was one of the founders of it. I am very glad to be a member, and have watched its progress and enlargement since 1887. It doesn't seem possible that a man could get along with so many medical men so amicably. I want to extend my thanks to them and I hope they will always be successful as physicians and hope they will keep up their membership not only in this organization but in the State society and the American Medical Association. (Applause.)

DR. GEIST (introducing Dr. R. O. Beard): The next speaker is also known to most of us. There are few of us in this room who did not receive instruction from him—instruction the value of which we still appreciate. The chief memory I have of his lectures is that of a continuous flow of oratory. He, too, seems to have found what Ponce de Leon searched for in vain. I take great pleasure in introducing Dr. R. O. Beard, of Minneapolis. (Applause.)

DR. BEARD: Mr. President and friends of the Minnesota Academy of Medicine: As one of the founders of the Minnesota Academy of Medicine, I want to assure its members of our deep appreciation of the honor you have paid to us all—and alike to those of us who are living and to the lasting memory of those who have been lost to us during the forty-three years of the life of this remarkable body.

There were forty charter members of the Academy. It gives us pause and it quickens the embers of still warm remembrances in our minds to recall the fact that thirty of these forty men have already gone "to that bourne whence no traveler returns."

It is something for which we will be glad and grateful to the end that we have had the privilege of association and the joy of friendship with these whom we knew so long, whom we loved so well, and have so early lost. It is much to have worked, hand in hand and shoulder to shoulder, with men so rare as Abbott, MacLaren, Wheaton, Stone, French, Ritchie, Senkler, Clark Stewart, Nippert, Dunn and the many

others who answered to our monthly muster-roll.

It is a happiness to know that these men, each in his own measure, were permitted to "snatch their narrow portion of time out of eternity"; that they were fitted "to do the work of men while they bore the form of them"; that they contributed greatly to the growth of the profession they loved, rendered their large service to mankind, lent something to the literature of medicine and to the literature, at large, of human thought.

We reverently salute the memories of these gone, but unforgotten friends!

The dawn of history is ever shrouded in more or less of mystery, and men have had to rely, more or less, upon tradition and recollection for the initial setting of any event. It is inevitable that in this half-light of other days the details we recall may, in some degree, differ. Great minds, it is said, move at a given time in one and the same direction.

I have been asked to give you some reminiscences of the Academy's past; and at risk that reminiscence is the somewhat faded fruit of the decadent years, I must needs comply with the request.

I remember then, a certain meeting of the Minnesota State Medical Society at Duluth in the spring of 1887. I recall the fact that, on the return trip, French, Hunter and I sat together, and that on the way French initiated a proposal to establish a select association of medical men and that the three of us discussed the possibility. I remember that, within a few days of our return, the same three met in Hunter's office and talked it over again. Then and there it was proposed that the Academy be limited in number and that its active membership should be drawn equally from the Twin Cities. I recall that we proposed three Saint Paul conferees, and that these three were Fulton, Wheaton and Stone; that French undertook to suggest the matter to these three brethren. Later, the six of us had a meeting which extended from Alex Stone's office to the Windsor Hotel in search of refreshments, and that other men were proposed by each and all of us. Among them were Ritchie, Riggs, and dear old Senkler, of Saint Paul, and Abbott, Allport and Dunsmoor, of Minneapolis.

On October 7, as the records show—and here actual history begins—an organizing meeting was held in Saint Paul, at which nine Minneapolis men and seven Saint Paul men were present. On October 12, a second meeting completed the organization.

It is a personal pleasure to the speaker to recall that he was privileged to write the Constitution, By-Laws and Standing Rules then adopted. The minutes of succeeding years show that while these documents were revised from time to time, they remain today the structural basis upon which the Academy was built and upon which it has rested ever since.

On November 5, 1887, the first regular meeting of the Academy was held, at which the first officers of the Academy were chosen. They included Dr. John F. Fulton, as President; Dr. A. W. Abbott, as Vice-President; Dr. LeGrand N. Denslow, as Treasurer;

while Dr. Edward C. Spencer and the speaker were jointly named as Secretaries.

For a year these two Secretaries collaborated, and the satisfaction of working with so essentially a Nature's gentleman as Edward Spencer is to be recorded. At the end of the first year, Dr. Spencer was assigned to the Treasurership and the speaker became the sole Secretary. In still another year, he was elected Secretary-Treasurer, a joint office which he filled for fifteen years. He may, perhaps, be permitted to boast of the possession of the unshared honor and the privilege of having served, in turn, as Secretary, Secretary-Treasurer, Vice-President, President, Fellow, and the Honorary Fellow, as, by your courtesy, he now ranks.

The pivotal point upon which the speaker believes the wonderful success and stability of the Academy to have turned is to be found in the stated purposes of its creation, viz., the cultivation of medical research and the association of medical men upon a basis of good fellowship, professional ability and literary merit. So strictly has entrance to the Academy been guarded by this statement of its objectives that the initial quality of its membership has been in its entirety continuously maintained. It has always been esteemed an honor to belong to the Minnesota Academy of Medicine.

In a time of professional differences and disintegration, the Academy has embodied a satisfying harmony. In the face of a progressive diminution of educational standards in the State, it has stood for lofty ideals. In the midst of current commercialism, on the one hand, and ethical fundamentalism, on the other, it has remained stanch to the highest traditions, translated into the modern spirit of medicine. In a day when pseudo-scientific research has easily passed muster, it has exercised real discrimination of medical values.

May I be permitted a word of greeting to my fellow-founders, all so warmly welcomed to this table.

I am glad that we still belong to The Minnesota Academy of Medicine. Although we need not now bear the burden and heat of its developmental years, in which we carried our fully-accepted share, we may continue to take our part in the councils which are functional to age and to grow young in the fellowship of its sustained youth.

We have lived in a past when Art has added much to Science and Science has carried Art aloft upon its lifting wings. We have lived in a present marked by vast material and mechanical progress and by still greater illumination of the human mind. We look out upon a future which promises the prevention of the human ills we have wrestled with, the advancing betterment of human being, the increasing longevity of humankind.

It is ours to hold an enlarging and enlivening memory of the days gone by; to grow still more greatly under the constantly expanding influence of these contemporaneous years; to vision with widening philosophy, with still gathering wisdom, with deepening understanding, the coming days.

It is not permitted to us to halt, for if we do the

rapidly rising waves of this living present will pass us by. It is ours still to keep step with the constantly compelling movement of our times.

Like the native music of America, our lives are set to a minor key, and for the identical reason that gives us this native chord. The old age of the individual is like the old age of the race. Its face is turned toward the setting sun. But that minor key is the most beautiful in the entire gamut of musical sound. We may beautifully keep in tune with it.

We have reached the years when we may stand, if we will, by the lift of our past experiences, upon "those summits whence the eye sees the world as one vast plain and one boundless reach of sky."

In sweetness, quietude and seriousness, it remains to us "so to live, that when the summons comes to join the innumerable caravan that moves to that mysterious realm where each must take his chamber in the silent halls of death, we go not like the quarry slave at night, scourged to his dungeon, but sustained and soothed by an unfaltering trust, approach our end as one who draws the draperies of his couch about him and lies down to pleasant dreams." (Applause.)

DR. GEIST: Eternal Youth! Dr. Beard, you have made all of us feel young again. As I listened I was recalled thirty years back to that old physiology lecture room and its hard, hard benches; those straight-back affairs!

I now bring this meeting to a close. It has been fine to have had with us our beloved Founders. We regret much that some of them were not able to be with us.

Founders! May you live long and may we enjoy your presence for many years to come. All Hail to You!

Dr. Thomas Roberts then showed two reels of moving pictures of Minnesota's wild animal and bird life.

R. T. LAVAKE, M.D., *Secretary*.

POMPEIAN OLIVE OIL NOT ACCEPTABLE FOR N. N. R.

The Council on Pharmacy and Chemistry reports that Pompeian Olive Oil was presented by the Pompeian Corporation for inclusion in New and Non-official Remedies. The Council explains that the product might be recognized as a brand of olive oil, U. S. P., marketed under the pharmacopeial name ("Pompeian" being used merely to identify the firm's brand) were it not that claims of unique advantage and therapeutic potency were advanced. The Council cannot admit in reference to this brand of oil the claim made that the "ease of its digestion and assimilation is far greater than that of any other vegetable or animal oil." After considering the evidence submitted by the proprietors, the Council decided that Pompeian Olive Oil is not acceptable for New and Non-official Remedies. (Jour. A. M. A. July 5, 1930, p. 35.)

UNIVERSITY NEWS

REPORT OF THE DEAN OF THE MEDICAL SCHOOL

To the President of the University of Minnesota
Sir:

I have the honor to submit the report of the Medical School for the biennium, 1928 to 1930.

FACULTY

Deaths.—On March 8, 1929, occurred the death by suicide of Dr. C. J. V. Pettibone, Associate Professor of Physiological Chemistry. Dr. Pettibone, A.B. University of Chicago, Ph.D. Harvard, several years of foreign study, had been connected with our school since 1912. As teacher and as Secretary of the Student Work Committee he rendered good service.

On April 3, 1930, Dr. C. Eugene Riggs, aged 77, Emeritus Professor of Nervous and Mental Diseases, died at his home in St. Paul. He was the pioneer of his specialty in the Northwest, was connected with the School from 1889 to 1913, and again gave active teaching service during the World War.

Resignations, Appointments.—Dr. Arthur A. Law, Associate Professor of Surgery since 1913 and connected with the department since 1899, resigned December 21, 1929. His services as teacher and as surgeon at the University Hospital were not only long in years but of high quality. There was never a time, day or night, when he was not ready to respond to an emergency call. His resignation was regretted by the department of surgery and the administration. By special vote of the Board of Regents a certificate of appreciation setting forth his services to the school, his honorable army record, his high standing in the profession and among the alumni of the University, was engrossed and presented to Dr. Law.

In June, 1929, Dr. Thomas Lee, Professor of Anatomy, former Director of the department, having reached the age limit, retired from active duty and, after a farewell dinner participated in by a great body of friends, moved to Florida. He had been on the faculty since 1891, and a host of students remember him with pleasure.

Dr. Fred L. Adair, Professor of Obstetrics and Gynecology, Chief of the service in these branches at the Minneapolis General Hospital, teacher and investigator of distinction, on our faculty since 1905, resigned October 1, 1929, to accept a professorship at the University of Chicago.

Dr. Frederick W. Schlutz, Professor of Pediatrics and Head of the Department, resigned April 1, 1930, to accept also a professorship at the University of Chicago. Dr. Schlutz had been a member of the teaching staff since 1910 and head of the department since 1924. He is recognized as distinguished in his specialty, as is evidenced by his call to his new position.

The resignations of Drs. Adair and Schlutz were prompted by the better salaries and opportunities offered by a heavily endowed university. It was with regret that we found ourselves unable to retain their services.

On January 1, 1930, Dr. A. C. Strachauer, Professor of Surgery and Head of the department, in accord with an arrangement entered into three years before, retired and Dr. Owen Wangensteen took his place. Dr. Wangensteen, our graduate, M.D. 1922, Ph.D. 1925, has been preparing himself through more than ten years for a university career in surgery. During the three years mentioned he spent fourteen months abroad on university salary and the rest of the time mostly in our own clinic. He takes up his work as head of surgery under the full-time plan. Dr. Strachauer has also resigned as Director of the Cancer Institute but will remain on the faculty with rank of professor on the unsalaried basis. We thank Dr. Strachauer for his years of service in the school of which he is an honored alumnus.

The appointment of Dr. Leo Rigler, M.D. 1920, as Chief of the x-ray department, although it occurred before this biennium, may be referred to as another example of the wise choice of a promising graduate, his advanced preparation in his specialty in part at University expense and his promotion while still young to a responsible post. This method of filling the faculty is justifying itself.

The place of Dr. Lee was filled by the transfer from the Department of Zoology to the Department of Anatomy of Professor Hal Downey, distinguished authority on blood, whose investigative work in recent years had brought him gradually into the medical field. The change of departmental affiliation was therefore appropriate, but the School expresses a debt to the Zoology group for relinquishing so valuable a colleague.

The post of Dr. Adair at the General Hospital, with its important teaching duties, was filled by the promotion of Dr. John A. Urner from Instructor to Assistant Professor and his assignment to that institution. He is one of the capital young men who have trained here in the last few years and have adopted medical academic careers instead of private practice. We were fortunate to have such a man available.

Without permitting the school to become inbred it is the desire of the administration to have a good proportion of our own graduates on the faculty. However, in the case of the vacancy in Pediatrics it was thought that our local alumni would be more valuable as part-time men in the department, bringing to it the point of view of active practice, and the choice for the headship fell upon Dr. Irvine McQuarrie, Associate Professor of Pediatrics, Rochester (New York) University School of Medicine. Dr. McQuarrie, 39 years old; A. B., Utah; Ph.D., California; M.D., Johns Hopkins; Instructor, Yale; Head of Pediatrics Henry Ford Hospital; at Rochester since 1926, has published important contributions in his field, has a fine record as a teacher. He will take charge in August 1930.

In order to be with her aged mother, Miss Marion Vannier, Associate Professor of Nursing and Director of the School of Nursing, has resigned as of August 31, 1930. Miss Vannier, graduate of Johns Hopkins School of Nursing, came to the University Hospital in

1916, later was Superintendent of Nurses at the Miller Hospital, later still Superintendent of Nursing in the University Hospital, became Director of the School in 1924. Miss Vannier is an expert in nursing education and administration, and the school has prospered under her direction. We regret to have her leave the University.

Miss Katherine Densford, A.B. Miami, A.M. Chicago, Graduate of the Cincinnati University School of Nursing and Assistant Dean in the Cook County Hospital School of Nursing, has been elected to succeed Miss Vannier.

Absences on Leave.—The School was honored by the selection by the Rockefeller Foundation of Dr. Hilding Berglund, professor of medicine, as visiting professor at the Pekin Union Medical School, for the year 1928-29. Dr. Berglund returned to duty July, 1929.

Dr. J. C. McKinley, Professor of Nervous and Mental Diseases, was on sabbatical leave, 1928-29, studying chiefly at Breslau, Germany.

Dr. William Swanson, Associate Professor of Pediatrics, has spent his sabbatical, 1929-30, at Johns Hopkins University.

Intrauniversity Faculty Relations.—The Medical School is proud of the contributions made by its members to the broad problems of the whole University and mentions particularly the important work done by Professor R. E. Scammon* in connection with the Insurance Plan for the faculty and employees recently adopted by the Board of Regents.

ENROLLMENT

The details of student registration will be found in the Registrar's report. Suffice it here to say that the number of medical students averages about 135 in each of the four classes with an equal number in the fifth or intern year required for the M.D. degree.

We take one hundred into the Freshman class each fall, selecting them from 300 or more applications. In place of the "Unclassed" group formerly accommodated we now take 40 additional Freshmen on January 1. These students take as their official freshman year the winter, spring and summer quarters and in the fall join on equal terms the 100 fall quarter freshmen of the previous year to make up the Sophomore class.

Our number of students makes this the second largest medical school in the country. We feel the number is too large for the best results of teaching, notwithstanding our continuous use of facilities throughout the year under the four quarter system.

We feel further that the policy of preference to Minnesota residents prevents to a certain degree the selection of the most promising material from our large number of applicants. Most applicants residing outside the state have to be rejected, regardless of qualification. From the standpoint of securing the best prepared and most cosmopolitan student body the policy of Indiana University that its Medical School exists to

prepare physicians for the state seems preferable to our presumably accepted theory that the Medical School exists to educate the children of the taxpayers.

These remarks on student enrollment concern themselves with medical students only. It is to be recalled that the Medical School administers also the Nursing School curriculum and the Medical Technicians curriculum. The enrollments in these courses are available in the Registrar's Report and other details will be found in the reports of the directors of these activities appended hereto.

The policy at Minnesota is that the Medical School, through its departments, teaches all students who need its disciplines as part either of a general education or of professional training. Consequently large numbers of students of Home Economics, Dentistry, Physical Education, Agriculture, Pharmacy, the Graduate School, etc., receive part of their training in the Medical School. These enrollments are naturally classified elsewhere.

COMPREHENSIVE EXAMINATION SYSTEM

During 1929-30 the Faculty has worked out and put in operation a system of examinations by which progress in the medical curriculum is made not by passing examinations on single courses but by a single examination on all the work of a given year. The thought is that the student should regard his education in terms of a large objective, should demonstrate capacity to keep in mind the essential substance of an entire year's work. Each year's examination is in charge of a special committee. The administration of all examinations is centralized. Dr. A. T. Rasmussen of the Department of Anatomy has done a noteworthy service as Chief Examiner. The first trial of the system this spring convinces the various committees that the comprehensive examination has advantages and that the number of failures, though distributed differently, is not increased over the old system.

NEW HOSPITAL UNITS

The completion in the fall of 1929 of the Eustis Children's Unit, the Out-Patient Unit and the Students Health Unit greatly increased and improved our teaching facilities along clinical lines. The number of hospital beds was increased to about 400, with adequate and beautiful quarters for children. The modern out-patient quarters led very soon to a distinct increase in number of patients available for this useful type of teaching. The bringing of the Student Health service to the Medical campus and its integration so far as bed patients are concerned with the University Hospital, have improved the Health Service, unified the University's hospital activities and brought the significant values of the Health Service as a community health movement more to the attention of future physicians.

READJUSTMENTS IN MILLARD HALL

The transfer of the out-patient service to its new quarters in the hospital group vacated considerable space in Millard and enabled the scientific departments therein to expand. Pharmacology in particular, which

*Since this was written Dr. Scammon has resigned to accept a position at the University of Chicago. This is a heavy loss to the University.

has been housed for fifteen years in Physiology space, gets adequate and convenient quarters in the north wing. Building changes essential to these readjustments are just being completed.

RELATIONS WITH THE MEDICAL PROFESSION

These relations have become measurably more harmonious and coöperative in this two year period. Three movements have contributed to this result.

The Alumni have become more active. Their Advisory Committee meets regularly with the Dean and Hospital Superintendent to consider school matters. During the meeting of the American Medical Association in Minneapolis in June, 1928, the alumni of our school held the largest meeting and banquet in the history of the School. Perfecting their organization they have instituted a clinical program each fall at Homecoming. The first was realized in 1929 and was satisfactorily attended. The entire program was put on by alumni, Dr. Otto Folin, distinguished biochemist of the Harvard Faculty and Minnesota graduate, being the guest of honor. Through these meetings an increasing number of alumni gain insight into the aims and problems of the School. To Drs. O. S. Wyatt and N. O. Pearce we owe much of value coming out of alumni interest.

The second activity contributing to better relations with the profession has been the Extension courses for physicians. While administered by the Extension Division the actual teaching has naturally fallen upon members of the Faculty. Weekly series of lectures of topics of value to medical men are offered in any part of the state when a center of interest exists. A considerable number of such courses have been completed and others arranged for. The State Medical Association contributes and coöperates. Dr. N. O. Pearce is largely responsible for the success attained. Of the full time staff Dr. W. A. O'Brien has contributed much time and effort to work among the doctors. We owe all these gentlemen a great debt. To various other participating Faculty members we give best thanks for a largely unpaid but very valuable service.

In this connection should be mentioned the informal consultation service developed as another joint activity of the Medical School and State Medical Association. This idea, again, emanates from Dr. Pearce, now President of the Medical Alumni; and Dr. W. A. O'Brien, Pathologist of the University Hospital, active publicist and tactful adjuster of difficult situations, is again the man selected to conduct the machinery by which doctors in rural practice can get expert information on troublesome cases. Dr. O'Brien on account of his peculiar abilities and on account of his position is also the choice of the State Association as radio speaker for the profession. This is an important educational effort. We are proud to have such a man as Dr. O'Brien available for activities like these just described.

Thirdly, as a factor in bettering relations with the profession and throughout the state should be mentioned the work of Mr. Paul Fesler, Superintendent of the University Hospital, among the doctors and county

officials. He spends a good deal of time in the various districts and strives to make the hospital more useful both to physicians and to the sick poor. Through Mr. Fesler's efforts and with the invaluable help of Dr. Herman Johnson and Dr. C. B. Wright—to name but two of numerous influential physicians interested in the matter—the appropriation for the University Hospital has been separated from the general University appropriation and increased. Inasmuch as the hospital is chiefly justified, in popular view, as a service institution this arrangement is fairest alike to legislature, taxpayers and the University as a whole. Too much praise cannot be accorded Mr. Fesler for his kindly, tactful, diligent efforts to bring the hospital in accord with the ideals of the profession and increase its effectiveness as a central institution for unfortunate citizens.

RESEARCH

This school has always carried on active research along various lines. The program has been stimulated and expanded in the biennium by the special appropriation of \$25,000 a year for medical research granted by the last two legislatures. This fund is apportioned to various projects advanced yearly by interested members of the faculty. More and more funds from outside sources are becoming available by gifts of individuals and corporations for special projects. Several departments publish their papers yearly as bound volumes of reprints. In a brief report details cannot be set forth. Those qualified to judge consider the quality and number of our publications as placing us among the noteworthy medical schools in this respect.

SYMPOSIUM

Early in 1929 the Director of the Summer Session proposed that funds be devoted to a limited number of special projects outside the ordinary routine of class work. Taking advantage of the fact that the International Physiological Congress was to meet (for the first time outside of Europe) in Boston in August, the Medical School and agricultural biochemical groups proposed that a Symposium on Physiology and Physiological Chemistry be held at Minnesota. The plan was approved and carried out July 15 to August 15. Distinguished foreign scientists contributing were Prof. M. von Frey, Wurzburg; Prof. T. Thunberg, Lund; Prof. E. Laqueur, Amsterdam; Prof. E. Waldschmidt-Leitz, Prague; Prof. G. V. Anrep, Cambridge. Several well-known Americans and our own men also participated. Attendance at these lectures was good. A large amount of interest was stimulated. The project will be continued this summer by a Symposium on "The Kidney in Health and Disease," July 7-18, under the chairmanship of Prof. Hilding Berglund.

ADVANCED STUDY

Graduate work in medical subjects and the training of medical graduates as specialists comes under the Graduate School and is reported by the Dean of that School. In this place is noted only that the number of such students getting training in the Medical School and under its faculty is increasing. Our men are going

out to good posts in other universities and filling vacancies in our own faculty. Some go to the higher walks of practice. The presence of the graduate group is stimulating in undergraduate education. The Medical School is proud of its participation along with the Mayo Foundation in the largest existing experiment in medical graduate education.

CONCLUSION

Taken broadly it is believed this review of its activities demonstrates that the Medical School is continuing its useful function as a teaching and investigative mechanism, has gradually strengthened its facilities and man force in the last two years, has widened its influence in the state and has contributed to the prestige of the University.

Respectfully submitted,

E. P. LYON, *Dean.*

June 30, 1930.

MISCELLANEOUS

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

HEARING HELD ON RIGHT OF MASSEUR TO USE TITLE OF DOCTOR

On July 21, a hearing was held before the State Board of Medical Examiners to determine whether or not the license of a masseur who was using the title of "Doctor" should be renewed for the year 1930. Masseurs under the 1929 Massage Law are prohibited from using the title, "Doctor."

The masseur in this case, however, who maintains an office in Minneapolis, refused to comply with the law and appeared in person before the Board together with his attorney. After a very thorough hearing on the matter the State Board of Medical Examiners unanimously voted to refuse to renew the license unless within ten days thereafter the applicant removed his signs and complied with the law. On a check-up of the case at the end of ten days it was found that all the signs had been removed.

The indiscriminate use of the title, "Doctor," was one of the outstanding complaints made about the non-enforcement of the previous Massage Law and resulted in a repeal of that law at the 1929 Session of the Legislature. By their action in this case the State Board of Medical Examiners has served notice that it intends to enforce the Massage Law as well as the Medical Practice Act and Basic Science Law.

RICKETS AND VITAMIN D

Without detracting in the least from the market value of viosterol in the treatment of rickets, certain recent investigations raise a question as to the simplicity of the pathogenesis of rickets implied in the current use of viosterol. It has been pointed out recently that, whereas both viosterol and cod liver oil are extremely efficacious in curing rickets, only the latter contains in addition the indispensable Vitamin A. Although the most obvious function of calcium

and phosphorus is in the building of bones, there are other demands for these mineral elements which, at times, become of great importance, and it has been shown that, whereas Vitamin D is concerned with the calcification of bones, the retention of calcium and phosphorus in the body is largely a function of the level of these materials in the diet. A comparison of the efficacy of cod liver oil and of viosterol as prophylactic antirachitic agents showed that of 123 children given viosterol 29 per cent were not protected against rickets, while of 100 given cod liver oil 3 per cent showed rickets, although the former group received twice the number of units of Vitamin D given the latter group. (*Jour. A. M. A.*, July 5, 1930, p. 38.)

DESICCATED PITUITARY PREPARATIONS OMITTED FROM N. N. R.

In 1928 the Council on Pharmacy and Chemistry discussed the lack of acceptable evidence for the value of pituitary preparations administered by mouth and concluded that extensive clinical experience had failed to establish the value of desiccated pituitary preparations for oral administration. At that time the Council decided to omit such preparations when the period for the acceptance of the products included in New and Non-official Remedies should expire, unless new evidence became available in the meantime permitting a different action. At the expiration of this period no favorable evidence had become available. Accordingly the Council has directed the omission of all desiccated pituitary preparations now included in New and Non-official Remedies, namely: Desiccated Pituitary Body-Armour, Desiccated Pituitary Substance (Anterior Lobe)-Armour, Desiccated Pituitary Substance (Posterior Lobe)-Armour, Anterior Pituitary Desiccated-Lederle, Posterior, Pituitary Desiccated-Lederle, Whole Pituitary Desiccated-Lederle, Pituitary Body Anterior Lobe Desiccated-Mulford, Anterior Pituitary Desiccated-P. M. Co., Pituitary Substance-Desiccated-P.M. Co., and Posterior Pituitary Desiccated-P. M. Co. (*Jour. A. M. A.*, July 19, 1930, p. 201.)

SUPER D BRAND COD LIVER OIL

The Upjohn Company markets a product "Super D Brand Cod Liver Oil." The advertising that is issued for this preparation reads as if the product were cod liver oil fortified by the addition of irradiated ergosterol. The Upjohn Company has not requested consideration of the preparation by the Council on Pharmacy and Chemistry and so far the Council has not reported on it. The Council has announced the acceptance for New and Non-official Remedies of the following brands of cod liver oil with viosterol 5 D: Abbott's Cod Liver Oil with Viosterol 5 D (Abbott Laboratories); Parke, Davis & Co.'s Cod Liver Oil with Viosterol 5 D (Parke, Davis & Co.); Squibb's Cod Liver Oil with Viosterol 5 D (E. R. Squibb & Sons); Squibb's Cod Liver Oil with Viosterol 5 D, Mint Flavored (E. R. Squibb & Sons). (*Jour. A. M. A.*, June 14, 1930, p. 1939.)

PROGRESS

Abstracts to be submitted to Section Supervisors.

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

SECTION SUPERVISORS

EYE, EAR, NOSE AND THROAT

Virgil J. Schwartz, M.D. 617 Medical Arts Bldg. Minneapolis, Minn.	Arthur C. Dean, M.D. Hot Springs, S. D.
--	--

GYNECOLOGY AND OBSTETRICS

Archibald L. McDonald, M.D. Lyceum Building Duluth, Minn.	L. W. Barry, M.D. 810 Lowry Medical Arts Bldg. Saint Paul, Minn.
---	--

MEDICINE

F. J. Hirschboeck, M.D. 205 West Second Street Duluth, Minnesota	Thomas A. Peppard, M.D. Medical Arts Bldg. Minneapolis, Minnesota
--	---

PEDIATRICS

Chester A. Stewart, M.D. 951 Medical Arts Bldg. Minneapolis, Minnesota	Roy N. Andrews, M.D. Mankato Clinic Mankato, Minnesota
--	--

ROENTGENOLOGY

Leo G. Rigler, M.D. University Hospital Minneapolis, Minnesota	A. U. Desjardins, M.D. Mayo Clinic Rochester, Minnesota
--	---

SURGERY

Donald K. Bacon, M.D. 456 Lowry Medical Arts Bldg. Saint Paul, Minnesota	Verne C. Hunt, M.D. Mayo Clinic Rochester, Minnesota
--	--

PEDIATRICS

RELATIVE PROPHYLACTIC VALUE OF CONVALESCENT AND IMMUNE ADULT MEASLES SERUMS: E. Garrido Morales, M.D., Epidemiologist, and O. Costa Mandry, M.D., C.T.M., Director, Biological Laboratory, San Juan, Porto Rico (*Amer. Jour. of Dis. of Children*, Vol. 39, No. 6, June, 1930). The prophylactic use of convalescent measles serum with good results has been reported by various investigators.

The use of immune adult serum in the prophylaxis of measles has also been encouraged, but little evidence is found in the literature regarding the true value of this agent.

Data are presented in this paper which give immune adult serum, in proper doses, a definite place in the prophylaxis of measles.

Of 120 children exposed to measles by familial contact and immunized with convalescent serum, 102, or 85 per cent, were completely protected. Fourteen of the eighteen attacked in this group developed attenuated measles.

Of 132 children also exposed to the disease by familial contact and immunized with doses of from 20 to 40 c.c. of immune adult serum, 108, or 80.3 per cent, received complete protection and 20 of 26, or 76 per cent, of those attacked developed attenuated measles.

Doses of 10 to 15 c.c. of adult serum gave complete protection in less than 50 per cent of the persons immunized, but usually resulted in an attenuated or mild form of the disease.

Of 183 untreated children (controls) living in the same houses with patients who had clinical cases and with treated children, only thirty-four, or 18.6 per cent, failed to contract the disease. Only two children had mild reactions among more than 500 who received treatment with serum. It appears likely that a serious obstacle to the widespread use of convalescent serum will be the objection of some parents to the immunization of their children with serum obtained from strangers. Immune adult serum is readily and universally available, and the technic for obtaining it from adults or children who have had the disease is simple and does not involve any risk. Immune adult measles serum should be used with greater frequency for the protection of exposed children, especially for debilitated children, who probably die from the disease.

R. N. ANDREWS, M.D.

EYE, EAR, NOSE AND THROAT

SOME NON-SURGICAL AIDS IN THE TREATMENT OF GLAUCOMA: S. R. Gifford (*Brit. Jour. of Ophthalm.*, Vol. XIII, No. 10, p. 481, Oct., 1929). Nearly all cases of glaucoma will at some time require surgical interference, and this should be done early, but in acute inflammatory and other conditions, it is necessary to postpone operative procedure for some time. In doing so it must be remembered that the visual fields and vision must be as carefully watched as the tension; also, that the tension varies during the day, it usually being higher in the morning.

Miotics should be tried in most cases, and these should be given frequently enough to keep the tension normal if possible. Eserine if used constantly often causes a conjunctivitis, so it may be necessary to alternate with pilocarpine and occasionally dilate the pupils for a short time with homatropine, to prevent the formation of adhesions.

Some of the newer methods may be used if further delay is necessary and high tension persists or as a pre-operative measure. Glaucosan is a dextro-rotatory adrenalin which shows no constitutional reactions on sub-conjunctival injection. A 2 per cent solution of ordinary adrenalin if instilled several times during an hour produces a mydriasis as great as that developed by subconjunctival injection of the 1/1000 solution. These are contra-indicated in the presence of any severe ocular inflammation. Their use is limited mainly to cases of simple glaucoma. Miotics should be instilled before using these and also immediately afterward, keeping the pupil well-constricted. The glaucosan is instilled (not injected) three to five times,

at fifteen minute intervals. Cotton pledges soaked in 1/1000 adrenalin may be used under the upper lid, first anaesthetizing with butyn. The same results may be better obtained by a sub-conjunctival injection of four or five minims of the 1/1000 adrenalin. In a series of fifty cases all but fifteen showed an appreciable decrease of tension. The amount of decrease varies as well as the duration. In some cases the reduction lasts a month or longer with continued use of miotics. The vaso-neurotic type of patient responds much the best.

Amino-glaucosan is a 10 per cent histamin solution which rapidly contracts the pupil but frequently does not reduce the tension. It also has the disadvantage of frequently causing an inflammatory reaction.

Intravenous use of hypertonic saline solutions may reduce tension considerably by causing absorption of fluids from all the tissues, including the eyes, into the blood stream. It is especially useful pre-operatively in acute cases, or combined with miotics when they alone fail.

Some good but a variable reduction of tension has been reported in using ergotamine. This may be given sub-cutaneously or by mouth in doses of 1/60 to 1/30 of a grain. This drug has no effect on acute glaucoma and its use must be continued over a considerable period of time. It raises the blood pressure and depresses the sympathetic nerve endings. It is used in glaucoma on the idea that hypertension is caused by hyperactivity of the sympathetic system and that such a drug would diminish vessel permeability.

L. G. FLANAGAN, M.D.

RECURRENT HEMORRHAGES INTO THE RETINA AND VITREOUS—CALCIUM DEFICIENCY AS A POSSIBLE CAUSE: Charles A. Young. (Trans. of Amer. Acad. of Ophthal. & Otolaryng., 1929, p. 191). In one of the three cases reported, low blood calcium seems to be definitely the cause of recurrent hemorrhages. This patient had eight hemorrhages in the past three and a half years. Blood calcium was 6.5 mg. per 100 c.c. The following treatment was instituted for a period of three weeks out of every three months:

Gluco-Calx 5 c.c. intravenously twice a week.
Parathyrin 1 c.c. intra-muscularly twice a week.

Thyro-Calx tablets, 1 t.i.d.

There were no hemorrhages for the next two years.

The early hemorrhages seem to clear up rapidly, but in cases of repeated hemorrhages the vision is usually lost as a result of proliferating retinitis and detachment of the retina.

There seems to be many causes for repeated retinal hemorrhages and it might well be that two or more factors are present, but calcium deficiency should always be considered as a possible cause.

L. G. FLANAGAN, M.D.

REMOVAL OF LEAD SHOT FROM THE VITREOUS: George H. Cross. (Trans. of Amer. Acad. of Ophthal. and Otolaryng., 1929, p. 173). Vision even to 20/20 can be saved by removal of lead shot from the vitreous, with a pair of wire forceps and a double plane fluoroscope. The attempt at removal should be made at once, otherwise the formation of exudates makes the removal more difficult.

In June, 1927, the first successful removal of a No. 6 shot was reported. This resulted in poor vision (light perception), but saved the eye-ball.

A foreign body in the eye-ball is a critical injury and may result in a vitreous abscess, plastic inflammation, degenerative iridocyclitis, detached retina or phthisis bulbi.

It is difficult even with modern devices to localize a foreign body to within less than 2 or 3 mm. The instruments used must be short because of the close proximity of the fluoroscope. Incision is made through the sclera after the shot has been localized; then forceps are inserted and guided by the fluoroscope. After removal, the sclera is sutured and atropine is instilled. Of the four cases, in two of the foreign bodies were in the orbital tissue. In only one of these cases was the shot removed. In the other two, the foreign bodies were in the vitreous and were removed in both cases, resulting in one case in a vision of 20/20.

L. G. FLANAGAN, M.D.

CAPITAL PUNISHMENT

I am not a proponent of capital punishment, though I am certain, if it were really used all over the United States it would be a deterrent to murder. When anyone says to me that it is not, I cease to listen to him for he simply does not think. Capital punishment is not really used any place in the United States. Certainly in nations where murderers are morally certain that they will be caught, convicted and executed, the list of murders is infinitely smaller than in these United States. Let me just quote what a bandit murderer said to me in a state where capital punishment is legal: "If you have to kill a guy in the course of doing your work, the chance are four to one that you won't get caught. If you are caught, the chances are two to one that you won't be convicted. If you are convicted the chances are four to one that you won't get hanging. And if you do get hanging, the chances are four to one you'll get a commutation to life, before you're hung, and if you get a commutation, you'll serve less than ten years if you behave yourself in prison." And he knew his statistics in this particular state. If that is using capital punishment as a deterrent, we have changed the meaning of the word "use." We must see to it that the crime of murder is treated properly to protect society from the gun man.—Rev. Don Frank in *Quarterly of American Interprofessional Institute*, June 1930.

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

EDWARD JENNER AND THE DISCOVERY OF SMALLPOX VACCINATION. Louis H. Roddis, Lieutenant Commander, Medical Corps, U. S. Navy. 155 pages. Illus. Price \$1.00. Reprinted from The Military Surgeon. Menasha, Wis.: The Collegiate Press, George Banta Publishing Co., 1930.

MEDICAL AND SURGICAL YEAR-BOOK. Physicians Hospital of Plattsburgh, N. Y. 322 pages. Illus. Price \$3.50. Plattsburgh, N. Y.: The William H. Miner Foundation.

CLINICAL LABORATORY METHODS (Third Edition). Russell Landram Haden, M.A., M.D., Professor of Experimental Medicine, University of Kansas, School of Medicine. 317 pages; 69 illustrations and 4 color plates. The C. V. Mosby Company, St. Louis, 1929.

As a former laboratory director and teacher in clinical microscopy and later a research man and internist, the author is peculiarly fitted to prepare a book of this kind. He claims it to be "in no sense a textbook" but a working manual for the clinical laboratory of a general hospital. The reviewer is impressed with the brief and clear presentation of each procedure without unnecessary discussion, the omission of unimportant and obsolete methods which ordinarily waste pages of like books on laboratory methods and the later and more authoritative references given to each technic to which the student may refer.

The book is manifestly a working guide for a busy clinical laboratory which is fortunate enough to enjoy the full coöperation and patronage of the internist who appreciates the real value of the well executed laboratory aid. As such, this book has a definite and useful place in the reference library of a clinical laboratory.

KANO IKEDA, M.D.

WANTED—Salaried appointments for Class A Physicians in all branches of the medical profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoe's National Physicians' Exchange, 30 North Michigan Ave., Chicago. Established 1896. Member The Chicago Association of Commerce.

EXPERIENCED LABORATORY TECHNICIAN and nurse wishes position in clinic, doctor's office, or hospital. Address D-97, care MINNESOTA MEDICINE.

WANTED—Locum tenens or assistantship by experienced physician, licensed in Minnesota. Address D-98, care MINNESOTA MEDICINE.

WANTED—1927 University of Minnesota graduate desires permanent location in Minnesota. Has been doing general practice and assisting surgeons since graduation. Age 33. Married. Can arrange interview. Address D-94, care MINNESOTA MEDICINE.

WANTED—Young lady 21 years old wishes position in doctor's or dentist's office. High school graduate, nurse's training, typewriting. Address D-95, care MINNESOTA MEDICINE.

PHYSICIAN'S OFFICE FOR RENT—Best location Midway district, corner Thomas and Hamline, Saint Paul. Rent \$25.00 a month. Inquire at dentist's office.